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Cross Connections
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Industrial Hygiene
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INDUSTRIAL HYGIENE AND LOCAL HEALTH DEPARTMENTS*

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INDUSTRIAL HYGIENE at the present time is an activity in public health endeavor conceded to be both legitimate and productive as a function of local health departments, yet nevertheless entirely lacking except in a few larger and well financed organizations.

The subject of specific occupational disease should not be considered as the chief point of attack in the development of an industrial hygiene program. In plumbism we have an example of an occupational disease which has served to focus attention on specific diseases arising from employment, and in America at least lead poisoning has occupied the same position in the field of industrial hygiene as has enteritis in the development of child hygiene, and tuberculosis in the general public health program in this respect.

In most of the leading activities which grouped together comprise present-day public health practice, there has been some single cause of illness or mortality which due to its prevalence and its devastating effects on human life has served to arouse both public opinion and public funds in efforts to combat encroachments on the health of certain population groups. In industrial hygiene the trend has been toward adding to lead poisoning other forms of industrial poisonings and one or more other diseases such as dermatitis, anthrax, glanders, and epithelioma occurring among carbon and tar workers. This trend toward narrowing the field of industrial hygiene to specific occupational diseases resulting from certain processes in industry hampers the development of more fundamental and more productive efforts toward hygienic betterment of working conditions for the whole group of industrial workers.

There is every good reason why industrial hygiene should be considered as a definite entity and as such appear with the other major subjects which compose approved health department practice. In all of the industrial cities wage earners have an undeniable claim for official recognition on the part of the health department that this department of the local government must carry a part of the responsibility for working conditions which constitute health hazards. And these health hazards need in no way be those which are specific for certain of the compensable occupational diseases under workingmen's compensation acts.

Hayhurst summarizes the leading health hazards as dust, dirt, dampness, devitalized air, temperature, fatigue, and darkness. There are, of course, others. None of these general health hazards in

* Read at the Joint Session of the Industrial Hygiene and Public Health Administration Sections of the American Public Health Association at the Fifty-fourth Annual Meeting, at St. Louis, Mo., October 22, 1925.

industry can be said to be the cause of specific occupational diseases which are compensable under the statutes. And yet in most cities with varied industries such health hazards in the aggregate are of vastly greater moment as affecting the health of workers than those few trade processes responsible for specific occupational disease.

Before local health departments proceed with a comprehensive industrial hygiene program this trend toward specific occupational disease objectives should be merged or correlated with a broader but nevertheless definite objective including leading health hazards in industry wheresoever they may arise.

At the same time, there need be no fear that in such a form of attack on these problems the incidence of the principal specific occupational diseases would be unaffected. Books on army tactics agree in stating that frontal attacks are seldom used in army campaigns, the lateral and the encompassing forms of attack being more commonly employed. A well organized campaign on the leading health hazards in industry could not fail to correct indirectly many of the conditions responsible for most of the industrial poisonings now recognized, and particularly does the same statement apply to a form of industrial poisoning not as yet fully recognized in its prevalence or in its insidious effects on the health of industrial workers, namely, chronic carbon monoxide poisoning.

It is obvious that whether the objective be to remove the leading health hazards in industry or to correct the hazards of most of the industrial poisonings, the principal activity in an industrial hygiene program should be directed toward air conditioning. No other single factor is of more importance in this field. Dust, dampness, devitalized air, temperature, fatigue, and to some extent dirt and darkness are attacked through efforts toward proper air conditions, and most of the industrial poisons are best combated in the same manner.

Outside the field of industrial hygiene, as well as inside, air conditioning also looms large as the subject most requiring development in public health. The smoke problem, the obnoxious odor problem, the prevention of rickets and of tuberculosis by removing air-borne obstacles to the beneficent effects of the shorter wave lengths in sunlight, the dangers of the closed garage and the flueless gas heaters as related to carbon monoxide, and high pneumonia and influenza rates as well, all point to a need for a more intensive public health program in securing better air. To-day, with respect to the air we breathe, we are very much in the position we were regarding the water we drank when typhoid and water-borne diseases were rampant 25 years ago.

Standards of yesterday in air conditioning cannot wholly be accepted as the standards of to-day. The local health officer must await the erection of standards which are practical and workable before entering far on an air purification program. Practical standards are those which do not unnecessarily suppress or embarrass industry. Prohibiting the use of white phosphorus or the sale of "ethyl gasoline" may be necessary as emergency measures to prevent industrial poisoning; nevertheless, as practical and workable standards in industrial hygiene, prohibitive regulations as related to the use of materials or the sale of products must be considered as heroic measures, and not well suited to the proper development from such an infant or even embryonic stage as industrial hygiene must now be conceded to occupy in most local public health programs.

There are still other obstacles in the development of industrial hygiene as a major function of local health departments. The financial obstacle need not be discussed at length as the question of sufficient funds applies to all extensions of public health programs. In safety hazards as well as in those occupational diseases declared compensable under workingmen's compensation acts industry

has borne in self-defense the expense of making large outlays for the purpose of lowering the incidence of industrial claims. Clubbing industry by such methods into the support of the whole program of industrial hygiene must not be allowed to continue as a standard method of procedure. Financing must come through convincing both employers and employes that industrial hygiene has something to offer industry, and when this is accomplished the tax duplicate will do the rest.

Two other obstacles loom large in furthering industrial hygiene by the local health departments. These are: (1) the difficulty in operating harmoniously with workingmen's compensation acts and the organizations responsible by law for their administration, and (2) the uncrystallized state of professional and public opinion as to the placement of safety hazards as related to governmental regulation by health departments. Opinions seem to be well formed that mechanical injuries fall without the scope of health department functions, but there are other forms of injury where the question remains debatable. In most municipalities it is rare to find any governmental agency other than the health department which can readily undertake to deal with safety hazards prophylactically, and apparently most of the efforts now being made to reduce accidents and injuries from violence are undertaken through private safety organizations.

In conclusion, there seem to be well defined needs for the establishment of industrial hygiene as one of major activities of local departments. As a first point of attack the subject of air conditioning for the purpose of reducing general health hazards in industry deserves emphasis. Practical standards of operation based on professional judgment are necessary for extensive development of the industrial hygiene program by local health departments, which must set forth:

1. The objectives with due regard for the relative incidence of specific occupational diseases and of other unhygienic factors in industry.

2. A separation from compensation acts of all functions of local health departments in this field.

3. The relation of the local health department program to safety hazards and to those agencies, public or private, engaged in accident prevention.

More Chemists Needed—"Opportunities for Chemists in the United States Civil Service" is the title of a pamphlet issued recently by the United States Civil Service Commission. The pamphlet has been written to stimulate interest in examinations in the field of chemistry, for the supply of eligibles seldom meets the demand, particularly in the junior grade or those recently graduated.

This pamphlet of 15 pages classifies the grades of chemists employed by the government and gives the requirements for eligibility, salaries, details of examinations and opportunities for development and advancement. Tables showing salaries and distribution of government chemists are included.

The commission is distributing the pamphlet among heads of departments in colleges, universities and technical schools. A copy can be obtained by applying to the commission.

Dinner to New York Health Commissioner—Dr. Louis I. Harris, recently appointed city health commissioner of New York City, was honored by several hundred physicians and public health workers at a dinner March 5 at Hotel Commodore, New York City.

Among the speakers were: Professor C.-E. A. Winslow, professor of public health at Yale University, "Public Health a Public Business"; Dr. Sigismund S. Goldwater, director, Mt. Sinai Hospital, "The City's Health Needs"; Dr. James Alexander Miller, president, New York Tuberculosis and Health Association, "The City's Opportunity in Public Health"; Dr. Livingston Farrand, president, Cornell University, "Value of Health Activities to the Public"; Hon. James J. Walker, Mayor of New York City, "The City's Responsibility to Protect the Health of the Public"; Dr. Harris, "What the Health Department Can Do."

IS THE PUBLIC HEALTH NURSE A CARRIER OF INFECTION?*

WHAT STATISTICAL evidence have we of the carrying of infection into a home by the nurse engaged in bedside nursing and the nurse engaged in infant hygiene and child hygiene, as well as the quarantining of communicable diseases?

This was the first question proposed to the Forum Session at the last Annual Meeting of the Association. In opening the discussion Marguerite A. Wales, R.N., Director of the Visiting Nurse Service of the Henry Street Settlement, New York City, made the following reply:

The question as it stands could have been answered by one simple word, "None," for not one case has been brought to light by the inquiries sent to health officers and directors of visiting nurse associations from the Atlantic to the Pacific Coast.

But these administrators were not satisfied with a simple, negative answer. Comments of great interest came from many. Rumblings of dissatisfaction with the present state of affairs came from others in cities where visiting nurses were refused admittance to the homes of patients suffering with communicable disease. Why should these nurses be barred from the patient whose physical need gives the greatest of all opportunities to demonstrate the principles of public health? At no other time is a mother so responsive to the teachings of the nurse, as when her child lies dangerously ill, and the nurse with her skilled hands is able to show her how to give the necessary care, how to protect the other little ones from the ravages of the same dread disease. Yet, health departments in many states still question the advisability of allowing the visiting nurse to care for a quarantined patient.

Some states have made a sweeping ruling that the nurse carrying on a generalized service cannot enter the home where there is scarlet fever or diphtheria. However, a health officer of one of our largest cities stated recently that he hoped at some time to have his communicable disease nurses give the bedside care to the patients they were quarantining "because it gave the nurse such a good hold on the family." For five years in Philadelphia the visiting nurse service has carried on a generalized program, including communicable disease nursing. There the city health officer and the director of the service report a "clean slate." The director adds: "Every instance, either of cross-infection or of development of contagion, where it did not exist, has been reported and subjected to the closest scrutiny."

The Henry Street Visiting Nurse Service, covering three large boroughs in New York City, with a population of 4,000,000 people, has carried on a communicable disease program for more than 15 years. At first, special nurses were assigned to the most virulent types of disease. During the days of fumigation the health department assigned certain stations, including the Willard Parker Hospital, for fumigating the bags, gowns, and equipment of our nurses.

Within the last 6 or 7 years a generalized program endorsed by the late Dr. L. Emmett Holt, who was then medical advisor and a member of the board, has been maintained. During this time only one instance is recalled where the question of cross-infection has ever been raised. It developed that the attending physician had unknowingly visited a scarlet fever case, and so he himself definitely fixed the source of infection on a medical rather than a nursing contact.

Since the records of the Henry Street Visiting Nurse Service brought to light no evidence of cross-infection, we decided to make a special study over a given period. Although the summer months were not so interesting a time for such a study, the supervisors for three months prior to this meeting watched carefully their communicable disease work for any possible

*Abstract of the discussion at the Forum Session of the Fifty-fourth Annual Meeting of the American Public Health Association at St. Louis, Mo., October 21, 1925.

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SELLING A GENERALIZED NURSING PROGRAM TO A HEALTH DEPARTMENT

There could not be a more convincing and dramatic demonstration of the conquest of a health department than that described by Mrs. Kathryn Schulken, Director of the Denver Visiting Nurse Association, in a paper presented at the last biennial meeting of the National Organization for Public Health Nursing. Mrs. Schulken believes that in adopting a generalized nursing program the first step is to perfect technic in the care of communicable diseases. The plans were developed with a medical advisory committee of leading local physicians. But before the complete reorganization of the work could be effected, the city was swept with a smallpox epidemic. The visiting nurse was required to give care to some of the most virulent types and still carry on the work in her district. After the epidemic had been controlled a member of the health department admitted that they had been so doubtful of the proposed program that they had kept a vigilant eye on the visiting nurse to trace cross-infection to faulty technic. But the nurses won out and the city's next budget carried a subsidy for the Visiting Nurse Association. Now the city is increasing the subsidy. The health department nurses who had carried on the instructive work in communicable disease cases were assigned to other duties and the visiting nurses who entered the home to give bedside care made the most of their opportunities to teach. Mrs. Schulken adds, "Physicians who had previously given very little consideration to our work now greatly appreciate this new service. They call on us for their cases, and are our strong supporters."

This question deals with the generalized program of the health department nurse as well as the nurse giving bedside care. In San Joaquin, California, where the nurse is assigned to a given territory by the health officer of that district, she is expected to do all types of public health nursing work, including infant and maternal welfare, school visiting, tuberculosis visiting and communicable disease control. During the 2 years that the work has been organized the general staff made 53,000 visits, more than 22,000 being for communicable disease control. Dr. Sippy states that there is not even the suspicion of any communicable disease transmitted by the nurse during this period.

Dr. Hastings of the Toronto Health Department believes there is no reason even to suspect that a nurse has at any time conveyed communicable disease from one home to another, although the nurses in his department are carrying on a generalized public health program, looking after communicable disease as well as other cases. "It is unnecessary," he claims, "to say, of course, we observe the necessary precautions of disinfecting before leaving a case and going to another."

Dr. Louis I. Harris, Chief of the Bureau of Preventable Diseases, New York City, reports that periodic investigations have been made at the height of the season to determine whether the nurse doing generalized communicable disease work spreads diphtheria while taking terminating cultures. These nurses may go to scarlet fever patients. This, of course, is one of the most intimate contacts, and no evidence has been found of cross-infection. Studies of the more intimate relation of the physician and patient were made to ascertain whether the medical men are agents, which showed only rare instances of cross-infection. Dr. Harris believes that while physicians are less disciplined in technic than nurses, it is a question not of function but of how intimate the contact, the intermediate transmission of infection being negligible.

Mary S. Gardner of Providence, R. I., says that Dr. Chapin feels that it is quite safe for her staff, following proper precautions, to care for contagious diseases, laying special emphasis on the excellent training her nurses have had in communicable disease technic.

WHAT IS TECHNIC?

Is not then the crux of the whole discussion, not a question of statistical evidence, since health officers and visiting nurse directors say their records are clear, but a question of technic?

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the physician in charge of the case failed to wash his hands until forced to follow the example of the consultant. He finds that even leading medical men are inconsistent in their disregard of good technic in little things, such as a certain well-known human custom of moistening the thumb to turn the pages of a convention paper.

What can be said for the chief of a health department who refuses to allow the visiting nurse, in her washable uniform with a fresh towel and liquid soap in her ever-present bag and with years of visiting nursing technic drilled into her, to go into a home where there is smallpox or scarlet fever, and yet will permit the nurse of his own department to wear a coat with fur collar and cuffs into the sick room of a child with measles; sit on the bed; play with the child and leave the house without washing her hands?

In Philadelphia where the Visiting Nurse Society has carried on communicable disease work since 1920, employing a general staff, the technic is very carefully worked out and rigidly observed.

The medical advisory committee of the Henry Street Visiting Nurse Service passes upon the bulletin of instruction which forms the basis for the new nurse's training in communicable disease routine. This committee, composed of Dr. William Darrach, Dean of Columbia University Medical School; Dr. Ralph Lobenstine, Dr. Charles Hendee Smith, Dr. Haven Emerson, Dr. Linsly Williams, Dr. Ira Wile, and representatives appointed by the three local medical societies, in approving a generalized nursing program believes that nurses should not go from scarlet fever or erysipelas to maternity patients. On this point Dr. Emerson stated that the technic of the nurse was adequate even under such conditions.

What then is technic?

In this country the visiting nurse organizations have adapted hospital principles to the conditions of the tenement home by what is known as "bag technic." Because this bag is used in many homes, the routine of protecting its contents from contamination becomes a part of the very being of the visiting nurse. A visiting nurse and a layman, interested in public health, were recently comparing experiences abroad. They had both gone out with nurses from two nursing organizations. The layman saw only the kindliness of the nurses, their interest in the patient's welfare, and their general fine character. The visiting nurse saw these qualities, too, but was much perturbed because one nurse while giving bedside care reopened her bag to take out additional articles without washing her hands. The nurse, carrying on a generalized instructive program, went from one patient to another, handling children in almost every house, yet she had no means of washing her hands. In the course of the afternoon a prenatal, a venereal disease, child welfare and measles patient were visited by her.

When we were first fighting this old problem of cross-infection in hospitals, we found that first physicians and later nurses were the source of infection because of faulty technic. Later, the hospital personnel learned that individual articles for patients, the washing of hands and the wearing of gowns made it possible for one nurse to care for many different types of cases in a single ward.

Dr. Harris says that, when New York started the program of discarding fumigation, there was the greatest hue and cry because of the grave danger involved. But we know this is not the only instance where our conservative medical colleagues are protecting the public from what seems at the time a radical change. Dr. Hermann N. Biggs often commented on the fact that the medical profession and not the lay public was difficult to convince. Read David Masters' new book, *The Conquest of Disease*. It is the medical men who have been the Doubting Thomases, when the greatest discoveries of the world have been brought forth by their own profession. Is there not, perhaps, something of this state of mind in the cities where health departments are still locking the patient's door to the visiting nurse who with bag in hand is able to teach the most ignorant mother in a way she understands at a time when she is most eager to learn?

Following the presentation of the subject by Miss Wales, it was further discussed by other members. An abstract of this discussion is given here:

Haven Emerson, M.D.—It is quite obvious that the evidence presented has not the accuracy or sufficiency of an exact epidemiological study. We cannot say at the moment that no public health nurse, anywhere in this country, engaged in generalized nursing has been the means of conveying communicable disease from a family which had it to another family previously uninfected.

Up to the present time, it is safe to say, however, that no reasonably adequate evidence has been brought forward as a means to incriminate the nurse in transmitting disease which would not equally apply to the family physician.

I hope you will notice the precautions taken and the specifications of technic and equipment that Miss Wales has described. She is dealing with nurses with good educational qualifications. These nurses have not only had the standard nursing training, but they have had experience in contagious disease work under supervision and have come into an organization which has established a technic which is a credit to medical science. The simplicity and the adequacy of the technic employed by well trained nursing organizations in using the equipment from their bags is quite comparable to the training inculcated in medical students, and physicians' minds in doing maternity delivery service, provided by lying-in hospitals and medical schools. The contents of the bag and its arrangement, the provisions for the emergencies of a day's work, the order in which these articles are handled, the preparation of the vicinity of the infected person, all are provided for in the technic of such organizations as that of Philadelphia, St. Louis, New York and Chicago and many others with which I am familiar.

Robert H. Riley, M.D.—In our Maryland experience we have no evidence of infection being carried by the public health nurse in rural work, but we certainly have evidence that leads us to suspect very strongly that smallpox can be spread in this manner in institutions. A small hospital in one of the Maryland towns housed a case of smallpox of the confluent type. The patient was a trainer and owner of race horses. He had recently come from Mobile, Alabama, and entered the hospital on a diagnosis of influenza. Undergraduate nurses were in attendance. Eighteen days following the admission of the smallpox patient into the hospital, and 12 days after vaccination, one of these nurses noted a papular eruption on her face, arms, and legs, which was diagnosed varioloid. This nurse not only looked after the smallpox patient on the second floor but had other patients under her care on the same floor and third floor. On the third floor in the colored ward was a man with paralysis of the left arm and right leg following an attack of influenza, and, of course, he was confined to his room during his entire stay at the hospital, with no contact with the case of smallpox. This man developed smallpox 21 days after the foregoing case was admitted. The original case and a woman patient with cancer died; the nurse and the colored man recovered.

In an adjoining county 2 years later a somewhat similar outbreak occurred. A colored man was taken from a stone quarry to a private hospital and remained under observation from April 9 to April 14, at which time he left the hospital not because he had recovered but rather because of suspected smallpox, as it isn't profitable in Maryland to treat smallpox patients in private hospitals. An infant born April 4 was carried through this man's room several times daily by the nurse who also looked after the colored patient. As an eruption appeared on the infant April 21, the incubation period could not have exceeded 13 days, assuming the colored man to be the source of infection. This was a severe case.

The mother of this infant was vaccinated April 17, and had a good "take." She was attended by this same nurse, but had not been in this patient's room. She developed a mild case of smallpox about April 24, and a slight eruption appeared April 30. She had never been vaccinated previous to April 17.

An undergraduate nurse, who attended this case from April 9 to April 14 during the patient's entire stay in the hospital was vaccinated on April 17, and had a "take," but became ill April 22 with a few papules. This was a mild case.

A white man aged 58 who was in a private room on the same floor about 8 feet from the patient, was vaccinated April 17 with a good "take" and had a mild eruption April 25. He was never in contact with the patient.

A second infant born April 1 who had pretty much the same exposure as the first baby, having been carried through the colored man's room, showed a mild case April 25. This child's mother had been vaccinated in childhood and "had genuine cowpox 15 years ago." This mother did not develop the disease. The epidemiologist is confident that this infant acquired some natural protection against the disease from the mother.

Louis I. Harris, M.D.—Bedside nursing calls for an intimate contact which does not exist ordinarily in the case of the field worker in communicable disease supervision and control. Therefore, we have to keep those two categories rather clearly separated in our mind.

With respect to the communicable disease field worker, it would be folly to over-

emphasize the intimacy of contact. The district nurse who does work in connection with the supervision and control of communicable disease is not in very intimate contact with the case. She does epidemiologic service in part. She obtains a history, serves notice of quarantine, and gives instructions, advice and information. Is it not rather queer and paradoxical that we permit mothers, not only as a matter of practical necessity, under certain restrictions and on the assumption that they will observe certain precautions, to take care of a sick child, and then debate seriously whether we shall permit nurses who enter the home for field work in the control of communicable disease to merely enter the home? Do we not confess somewhat the old fear of the conveyance of infection by our mere entrance into the doorway of a home? I think a great deal of such fear reveals a lamentable uncertainty of the scientific basis of modern medicine.

The bedside worker offers us a different problem. Her work, though carried on in the home, is analogous to that of the nurse working in the contagious disease hospital. Every hospital for the care of communicable disease cases has found its bête noir to be cross infections. But cross infection, as Dr. Emerson has shown very well from his study in the Willard-Parker Hospital, can be prevented if there is intelligent, diligent and conscientious application of current knowledge in the technic of the nurse or the attendant. To-day it is a common spectacle in one division of the Willard-Parker Hospital to see the nurse busily engaged in the care of a scarlet fever case, and after following the surgical technic prescribed, go directly to a diphtheria or a measles case, all housed in the same ward. She does this without fear of conveying infection.

There has been dispensary experience which shows that with the accumulation of a large number of cases, some of which have not been singled out as suffering from a communicable disease, intimate contact of the doctor and nurse in the dispensary and their work on other cases has not spread infection so frequently as we would suppose. Unfortunately, there is no statistical evidence regarding this. But we have taken cross sections of dispensary experience at various times which include a very large number of cases dealt with most intimately. From our experience with those who handle thousands of cases in the space of a short time, we derive ample warrant to feel that we may permit our communicable disease nurses to engage in general bedside nursing service, provided that the surgical technic, such as the Henry Street Nursing Service and other visiting nursing organizations carry out, will be employed.

I believe that without the body of scientific evidence, which would give us greater courage and greater justification, we have, nevertheless, on the basis of experience, a sufficient knowledge to warrant our fearless continuance and expansion of the work of field nurses to include bedside nursing care of communicable disease cases.

Alta E. Dines, R.N.—In the course of the day's work, the public health nurse is in many homes. She is supposed to look at every person, whether well or sick and size up every situation. She may come in contact with undiagnosed cases of communicable diseases. The undiagnosed case of scarlet fever or measles is quite as infectious as the diagnosed case.

I cannot let this session pass without a plea for nurses who are well enough educated that we need never fear the carrying of infection from one patient to another. I cannot imagine any board of health or any private organization that would be willing to have a nurse on its staff who could not carry out proper bedside nursing technic. That is the standard we have set for the public health nurses of this country.

Dr. Roberts—I cannot let this discussion go by without challenging at least one statement made by Dr. Harris, to the effect that in the Willard-Parker Hospital at the present time one can see the nurse going from one cubicle to another nursing measles and scarlet fever, and not carry it.

My experience with measles is that you will take it if you come within gunshot. I believe, where you have nurses handling cases of measles, whooping cough and diphtheria as a routine, you have to have immunes and only immunes to certain diseases if it is going to be successful.

Let me cite an experience. In a hospital containing 60 diphtheria beds and 60 scarlet fever beds where our pupil nurses went from the general wards into the infectious wards, the nurses not only contracted diphtheria and scarlet fever themselves but they carried the diseases back to the children's wards and to nurses in other wards. At the present time, no nurse is allowed to go to a diphtheria hospital until she has had toxin and antitoxin treatments and before she has been checked to determine that she is immune. The former

condition, resulting in some deplorable accidents for years, has entirely been done away with.

I do not think you could consider the question of nurses doing bedside work with respect to communicable disease or ordinary routine work without considering two things: First, the question of mass infection, stressed by Dr. Harris; and, second, the question of immunity and non-immunity.

Charles V. Craster, M.D., D.P.H.—I think Dr. Roberts has put his finger on a good point, that is, the question of immunity. Are we justified in allowing susceptible nurses to handle contagious cases? In our hospital we had quite a continuous string of typhoid cases among the nurses, and very frequently the disease was transmitted to other patients in the wards.

Several years ago the practice of inoculating nurses was introduced. A prerequisite of their employment was that they be immunized against typhoid fever. Since then we have not had a single case of a nurse with typhoid fever; neither have we had a cross infection of typhoid cases in other cases in the wards.

I think probably the best attitude for the health officer would be to allow a certain amount of this visiting to go on. In Newark when the Visiting Nurses Association applied to me I said it would be allowed until we saw how things developed.

So far as I know, there has been no instance of cross infection by the visiting nurses going from one case to the other. I think it is not only a question of mass infection, but it is a question of continuous exposure. If a nurse were on the case all the time, you might have a greater possibility. But where the proper precautions are taken, there should be no fear that the danger is sufficiently great to feel that it will be carried. I know from a social point of view it is well worth while.

A. M. Carr, M.D.—Do all doctors accept the statement previously made that if you get within gunshot of measles you will get it? I have never had measles and I have nursed and taken care of thousands of cases. I think it is a most extraordinary statement of experience in New York and is open to considerable question.

Herman E. Pearse, M.D.—I will qualify as to smallpox, first as a staff man. I took part in a crusade against allowing nurses to leave the smallpox hospital many years ago. A woman who was head nurse is in this audience to-day and is employed in an eastern city. She allowed the contagious disease nurses to go to the general dining room and mix with the general nurses. They observed a certain technic. To my chagrin and my delight no infection took place when these nurses mingled in the general dining room. From step to step, we followed that epidemic of 1912 or 1913. The second epidemic was in 1917 and, being health commissioner, I was then on the other side of the question. With about 10 cases of smallpox a day, and an average of 50 in the hospital all the time, nurses and internes were asked not to appear in the general dining room or on the play or recreation grounds of the hospital, nor in any way to come in contact with other people. I went out to the hospital and stopped it. They followed the technic as given by the Visiting Nurses Association. We had no cross infection, we had no conveyance of smallpox.

With our hospital cases of diphtheria and scarlet fever, we follow now about the same precautions that a nurse takes when she attends, from case to case, as our nurses do in the operating room. We have no cases that we can track to the nurse. As a rule, communities are especially rabid about isolation. At present, they do not give us much trouble with our diphtheria or scarlet fever or smallpox cases, but we do catch the mischief in the case of anterior poliomyelitis. They not only want us to quarantine the family, but the nurse who nursed it. I know of no case of anterior poliomyelitis being carried from one person to the other. The less the public knows, the more rabid they are regarding a close isolation.

The nearer we follow this same rule and the carefully built up practices of the district nurse, the safer we are going to be, I think, in handling our infections.

Miss Wales—I want to take up one point that was brought out by Dr. Roberts regarding the immunization of nurses. I think we are making progress in that respect since we are using our medical advisory committee. We are instituting health examinations yearly, and asking the nurses to pass the necessary immunity examinations where they find they are susceptible to the various diseases. We have had some interesting revelations.

I want to thank Dr. Pearse for what he has said, because I think that that feeling is becoming more and more general.

DETECTION OF AMEBAE IN CASES OF CHRONIC SYSTEMIC AMEBIC INFECTION*

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THE *Endameba dysenteriae* affects chiefly the intestinal tract. Heretofore disease caused by it has usually been regarded as limited to that tract except for occasional involvement of the liver by an abscess process and still more rarely by abscess formation in other portions of the body.

The interest shown during the past few years in the search for pathogenic protozoa in feces has demonstrated that amebae are frequently found and that infection with the *Endameba dysenteriae* is by no means limited to persons who have been in the tropics or even in the southern portion of the United States. Many of the soldiers who returned from Europe were infected with this pathogenic type of ameba. Kofoid [1] and his associates report the finding of *Endameba dysenteriae* in 2,300 hospital cases of soldiers who returned from overseas and in only 4.3 per cent of 576 soldiers who had seen only home service. On the other hand, Boeck and Stiles[2] believe that from the evidence available it is not clear that the return of our soldiers from Europe has caused any material increase in the number of cases of amebic dysentery in this country.

Many persons who harbor this parasite are not ill. They are apparently carriers of the organism. Other persons in whom the parasites are found have not had any symptoms referable to the intestinal tract but, on the other hand, have had symptoms such as general indisposition, weakness, lack of ambition, mental apathy and depression, neuralgic or neuritic pains, etc.—symptoms apparently due to a systemic toxemia. In many cases treatment with emetin will cause a disappearance of the symptoms. It has therefore been assumed that the symptoms were most likely caused by amebae.

A few years ago Kofoid and Swezy[3] discovered *Endameba dysenteriae* in necrotic foci in the bone marrow of a case of arthritis deformans under the clinical care of Ely and associates.[4] Since, that time the *Endameba dysenteriae* has been found in the feces of many cases of chronic multiple arthritis. Many of these cases of arthritis have been cured by specific antiamebic treatment, leading to the natural assumption that the amebae were the cause of the arthritis.

These observations will probably considerably extend the field of activity of the public health as well as clinical laboratory worker.

A search for *Endameba dysenteriae* should be made in many cases of illness, regardless of the absence of an epidemic of dysentery or of dysenteric symptoms in a given case. This should be especially true of all cases of arthritis and neuritis, accompanied by general indisposition, in which some other definite cause is not obvious.

Cases of systemic amebic infection are probably always accompanied by some involvement of the intestinal tract. Nevertheless the amebae may not be found in the feces, especially when only one or a few specimens are examined. Boyers[5] in a personal communication states that

* Read before the Laboratory Section of the American Public Health Association at the Fifty-fourth Annual Meeting at St. Louis, Mo., October 21, 1925.

a persistent search for the specific amebae will seldom fail to reveal their presence in cases of systemic amebiasis which are clinically positive.

Microscopic examination of feces represents the only practical means of identifying pathogenic amebae in cases of systemic amebic infection. A series of at least 6 specimens taken on 6 successive days should be examined before regarding the case as negative. Boyers[5] claims that the administration of bile salts seems to favor the appearance of amebae in the feces. The enteric coated tablets called "Glycotauro" (Hynson, Westcott and Dunning) represent a convenient form of taking the bile salts.

The following directions for the collection of specimens are sent out by our laboratory:

DIRECTIONS FOR THE COLLECTION OF SPECIMENS OF FECES TO BE EXAMINED FOR AMEBAE

1. Give patient 18 5-grain tablets of Glycotauro (bile salts) with instructions to take 1 tablet 2 hours after each meal for 6 days.

2. Give patient 6 small wide-mouth well-stoppered bottles with instructions to collect a small portion of feces (about the size of a small marble) each day for 6 successive days, beginning the day after starting on the bile salts.

3. Send specimens to the laboratory as soon as possible. If the laboratory cannot be reached within a day, pour a small amount (about one-fourth volume of feces) of 10 per cent formalin (one part of the commercial formalin to 10 parts of water) over the feces.

The laboratory examination consists of a search chiefly for the cyst forms of the parasite, since these are, as a rule, very much more numerous than the motile vegetative forms. This is especially true of chronic amebiasis. In cases which present a rather definite clinical picture of amebiasis and cysts have not been found on repeated examination, it is advisable to make an examination for the vegetative forms also. Specimens to be examined for such should be kept at body temperature by means of a vacuum bottle and a warm stage.

TECHNIC OF EXAMINATION

We have followed chiefly the technic recommended by Kofoid and his associates.[6] Since many laboratory workers are not familiar with their methods I present an outline of them herewith:

Two methods are used: (1) a direct smear of fresh fecal matter stained with a modified Donaldson's iodine-eosin, and (2) a fixed preparation stained with Haidenhain's iron-hematoxylin.

1. A drop of normal salt solution and one of iodine-eosin stain are placed close together on a slide but not touching. A round applicator stick or a tooth-pick is smeared with the feces, rolled in the drop of normal salt, then in the drop of iodine-eosin. A single cover slip is placed on both drops, half the material under it being stained and the other half unstained. Examine the unstained portion first for living flagellates and active amebae. In the stained portion the protozoan cysts stand out as bright spherules against the pink background and soon become tinged with the iodine to varying tones of yellow, with the nuclei becoming clearly defined as the iodine penetrates. If glycogen is present in the cysts, it becomes light or dark brown in color.

IODINE-EOSIN STAIN

a. Saturated aqueous solution eosin in normal salt	2 parts
b. 5 per cent potassium iodide in normal salt solution saturated with iodine	1 part
c. Normal salt solution	2 parts

The proportion of iodine solution used may be modified to advantage by adding a slight excess of that given in the formula if the nuclei do not appear after a few moments' application of the stain. The stain should be made up each day from the stock ingredients.

2. For fixed preparations a smear is made on a slide which has been previously

thoroughly cleaned in alcohol-ether and flamed. If the fecal material is too dry, moisten slightly with normal salt, make a thin smear with the applicator stick or the flat side of a toothpick or by using the edge of another slide or a cover slip, and immerse directly in fixing fluid *without allowing the slide to become dry.*

FIXING AND STAINING METHODS USED

1. Schaudinn's fluid (even if previously fixed by formalin)	5 min.
2. 70 per cent alcohol tinged with Gram's iodine	5 min.
3. 70 per cent alcohol	5 min.
4. 50 per cent alcohol	5 min.
5. Tap water	2 min.
6. 2 per cent iron alum—aqueous solution	5 to 12 hrs.
Or 2 per cent iron alum—aqueous solution heated to 30° C. (never higher)	10 min.
7. Tap water—running	5 min.
8. 0.5 per cent Hematoxylin—aqueous solution (Haidenhain's)	12 to 18 hrs.
or 0.5 per cent Hematoxylin—aqueous solution heated to 30° C. (never higher)	10 min. to 1 hr.
9. Tap water rinse	
10. Differentiate in 1 per cent iron alum with careful watching under the microscope	3 to 30 min.
11. Wash in running water	10 min.
12. 50 per cent alcohol	5 min.
13. 70 per cent alcohol	5 min.
14. 90 per cent alcohol	5 min.
15. 100 per cent alcohol	5 min.
16. Xylol	5 min.
17. Mount in balsam—cover.	

Schaudinn's fluid—2 parts saturated aqueous $HgCl_2$ in normal salt; 1 part absolute or 95 per cent alcohol. Add 4 c.c. glacial acetic acid to 96 c.c. of the mixture on using.

If a quick method is desired, the same outline can be followed with a shortening of the time of application of the iron alum and the hematoxylin. The slide is taken from the water, flooded with or in alum by a pipette and held over a flame or placed upon a heated plate for about five minutes, or until it begins to steam. Wash in water and treat in the same way with the hematoxylin, continuing the application of heat until a metallic scum appears on the top of the fluid on the cover slide. Differentiate in iron alum. Care must be taken throughout the entire process to avoid drying of the smear. Use American hematoxylin, standardized white crystals only. Use only violet crystals of iron alum; reject yellowish powder.*

Boeck and Stiles[2] prefer to use eosin and iodine separately for the fresh unfixed specimens.

It is obviously a matter of the greatest importance to be certain of a diagnosis of *Ameba dysenteriae.* There are so many other amebae of similar structure; other types of protozoa and other cells of somewhat similar morphology that the diagnosis of the specific amebae of the dysentery type should not be left to anyone not entirely familiar with their definite recognition.

* Ordinarily only the iodine-eosin method is employed and the 1/6 dry objective used. For the confirmation of suspicious forms, stain with iron hematoxylin and examine with oil immersion. Use a binocular microscope.

REFERENCES

1. Kofoid, C. A. Amoeba and Man. University of California, 1923.

2. Boeck, W. C., and Stiles, C. W. Studies on Various Intestinal Parasites (especially amoebae) of Man. *Hyg. Lab. Bull. No. 133,* U. S. Public Health Service, 1923.

3. Kofoid, C. A., and Swezy, Olive. On the Occurrence of Endamoeba dysenteriae in Bone Lesions in Arthritis Deformans. *California State J. M.,* Feb., 1922.

4. Ely, L. W., Reed, A. C., and Wyckoff, H. A. The Amoeba as the Cause of the Second Great Type of Chronic Arthritis. *California State J. M.,* Feb., 1922.

5. Boyers, L. M. Berkeley, Calif. Personal communications.

6. Kofoid, C. A. Dept. of Zoölogy, University of California, Berkeley, Calif. Personal communication.

PUBLIC HEALTH ASPECTS OF CROSS CONNECTIONS AND DUAL WATER SUPPLIES

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A CROSS CONNECTION may be defined as a physical arrangement whereby a public water supply system is connected with another water supply system, either public or private, in such a manner that a flow of water into the public water supply system from such other water supply system is possible. The various communities of New York State have spent vast sums of money to secure for the people an adequate supply of water of a satisfactory character. Great care is taken constantly to maintain the sanitary quality of this water before its entrance into the public mains, and yet the majority of our cities permit cross connections between the public water supply and independent private supplies of known impurity. Frequently the definite presence or location of these cross connections is not known to the local water supply authorities.

It is the present practice of the fire underwriters to require for their large commercial and industrial risks an independent water supply furnished either by direct pressure through private fire pumps or through fire pumps to elevated tanks. The purpose of the auxiliary supply is to give an independent source of supply in case of failure of the public supply or to supplement the capacity or pressure of the latter supply. Furthermore many industrial concerns, for the purpose of economy, use private supplies for manufacturing purposes.

To the interconnection of these auxiliary supplies with the public water supply, either directly or through gate valves and check valves, have been traced numerous epidemics of typhoid and other enteric diseases either within the factory itself or in the municipality whose water supply has thus become contaminated. Inasmuch as it is generally possible for the pressure of the private supply to be or to become greater than the pressure of the public supply, the potential danger of pollution of the public supply is always present. Whereas the pressure of the public supply may be relatively high, it is possible at times of unusually large drafts on the supply or in case of breaks or repairs to the mains that the pressure may be materially reduced or even become zero.

That such conditions constitute an actual menace to public health is shown in Table I which gives outbreaks of typhoid fever due to cross connections. Although this list is not complete, it shows numerous outbreaks of typhoid fever, resulting in thousands of cases of typhoid and more than 100 recorded deaths since 1903. All of these outbreaks were definitely traced to cross connections between public water supplies and polluted private supplies. There were 9 outbreaks in New York State, in 2 of which—Herkimer and Seneca Falls—there were 155 and 102 cases of typhoid respectively.

The question of cross connections has become a matter of increasing interest and importance during the past few years as is evidenced by the space given this subject in the medical and engi-

TABLE I

PARTIAL LIST OF INSTANCES OF POLLUTION OF PUBLIC WATER SUPPLIES DUE TO CROSS CONNECTIONS WITH PRIVATE AUXILIARY SUPPLIES WITH SPECIAL REFERENCE TO OUTBREAKS OF TYPHOID FEVER

Location	Year	Typhoid Cases	Typhoid Deaths	Cases of Other Enteric Diseases or Disturbances	Remarks	Reference
1. Lowell, Mass.	1903	172	9	Many thousands	Check valve failure after fire.	*Jour. A. M. A.*, 41:151-5, 1903; *Proc. Am. W. W. Assn.*, 1913, p. 153; and *Eng. News*, 51:125.
2. Lawrence, Mass. ...	1903	43			Leaking check.	*J. New Eng. W. W. Assn.*, 22:235.
3. Bloomington, Ill. ...	1920	130	15	400	2 leaking gate valves.	*J. Am. W. W. Assn.*, 7:560.
4. Hyde Park, Mass...	1907	Several			Double F. M. check valves held open by overalls.	*J. New Eng. W. W. Assn.*, 1922, p. 406.
5. Circleville, O.	1914	43	2		Leaking check.	*Annual Report* Ohio State Bd. of Health, 1914, p. 724.
6. Springfield, O.	1911	12			Leaking check.	*Annual Report* Ohio State Bd. of Health, 1911, p. 469.
7. Van Wert, O.		300	5		C.N.R.R. direct connection.	*J. Am. W. W. Assn.*, 6:750, 1919.
8. Philadelphia, Pa. ...	1913	(317?)	Many		Filtration plant failed to reduce typhoid, campaign on cross-connections practically eliminated. Many leaking checks found.	*J. Am. W. W. Assn.*, 6:750, and *Ann. Rep.*, Bureau of Health, Phila., 1913, pp. 116 & 308.
9. Minneapolis, Minn. .	1918	18	6		Leaking check valves.	*J. Am. W. W. Assn.*, 6:773.
10. Woonasquatucket, R.I.	1917	40	4			*Quart. Bull.* R. I. State Bd. of Health, 3, 4:26-30, 1917.
11. Franklin, N. J.....	1922	114	18		Leaking check during test of fire pumps.	*Eng. News-Rec.*, 89:959, 1045, 1922; *Eng. News-Rec.*, 91:429, 1923.
12. Rockaway, N. J.....	1923	41	4		Check valve stuck, required crowbar to move.	*Eng. News-Rec.*, 91:267, 1923.
13. Elgin, Ill.	1916	Many	18			*Jour. A. M. A.*, 68:465, 1917.
14. St. Paul, Minn.....	1914			80		*J. Am. W. W. Assn.*, 6:752.
15. Milwaukee, Wis. ...	1912	Not determined			Public supply polluted by leaking checks.	*J. Am. W. W. Assn.*, 6:749, and *Milwaukee W. W. Ann. Rep.*, 1912, p. 21.
16. New Bedford, Mass.	1903	Not determined			Public supply polluted by leaking checks.	*J. New Eng. W. W. Assn.*, 17:69, 1903.
17. Mannington, W. Va.	1916	Several			Leaking valve.	*J. Am. W. W. Assn.*, 6:752.
18. Nitro, W. Va.....				Several thousand	Direct cross connection.	*J. Am. W. W. Assn.*, 6:752.
19. Piedmont, W. Va..		470				*J. Am. W. W. Assn.*, 6:753.
20. Massachusetts.....	Three instances of typhoid outbreaks due to cross connections. No figures given.					*J. Am. W. W. Assn.*, 6:753.

neering journals. The outstanding reports and opinions on this subject are the Report of the Committee on Private Fire Protection Service of the American Water Works Association in June, 1919, the Report of the Committee on Cross Connections, By-Passes and Emergency Intakes on Public Water Supplies (adopted by the Conference of State Sanitary Engineers, Boston, June, 1921), the action of the Board of Water Commissioners, Hartford, Conn., November, 1920, and the Resolution passed by the Fire Protection Section of the American Water Works Association in Louisville, Ky., April 30, 1925.

The following excerpts are from these reports:

1. *Excerpts from American Water Works Association Committee Report, June*, 1919:[29]

Greater safety is unquestionably attained by providing two well-constructed check valves where dependence was formerly placed upon a single valve of but ordinary construction. Let it be said here that too much emphasis cannot be laid on the construction of these valves.

It is impossible to state how much more security two high class check valves afford than is afforded by a single one of good or poor construction. So long as it is possible for a single check valve to leak, it is possible for two in a series to leak at the same time,

TABLE I—(Continued)

PARTIAL LIST OF INSTANCES OF POLLUTION OF PUBLIC WATER SUPPLIES DUE TO CROSS CONNECTIONS WITH PRIVATE AUXILIARY SUPPLIES WITH SPECIAL REFERENCE TO OUTBREAKS OF TYPHOID FEVER

Location	Year	Typhoid Cases	Typhoid Deaths	Cases of Other Enteric Diseases or Disturbances	Remarks	Reference
21. Hartford, Conn. ...	1918	Not determined			Public supply polluted by leaking check.	*A. J. P. H.*, 10:724–28, 1920.
22. Toronto, Can.		5			Direct cross connection by employee.	*Proc. Am. W. W. Assn.*, 1913, p. 163.
23. Maywood, Ill.	1920			75		*Eng. News-Rec.*, 86:310, 1921.
24. Winnipeg, Can.	1908	26	3			*Eng. News*, 17:507, 1910.
25. Philadelphia Navy Yd.	1920			Several		*Eng. News-Rec.*, 84, 25: 1187, 1920.
26. State of Illinois....		800			In 5 outbreaks due to cross-connections.	Communication dated Oct. 15, 1923.
27. Rock Falls & Sterling, Ill.	1924-5	12	2		Check and globe valve leaked.	*Eng. News-Rec.*, 94: 526-7, 1925.
28. Everett, Wash.	1923	77		2000		*Pub. Health Rep.*, 39, 13: 605-11, 1924.
29. Ft. Wayne, Ind....	1923	150	22		2 gate valves & 1 check.	*Eng. News-Rec.*, 92:348e, 1924.
30. Nashua, N. H.....				Many	Check held open by tubercles.	*J. New Eng. W. W. Assn.*, 24:382. Communication.
31. Wolfpit, Ky.	1925	67	7+			
32. Winona Lake, Ind..	1925	Many		Many		*Pub. Health Rep.*, 40: 1761-3, 1925.
33. Rochester, N. Y....	1910	58		Many	Operator on Hyd. lift bridge removes checks from 2 check valves.	*J. Am. W. W. Assn.*, 7:648. 1920. Stubbs vs. City of Rochester, 226 N. Y Reports 516.
34. Utica, N. Y.....	1917	49		Many	2 gate valves & 1 check.	*38th Ann. Rep.* N. Y. State Bd. of Health, II:539-50.
35. Herkimer, N. Y....	1918	155			Direct connection.	*39th Ann. Rep.* N. Y. State Bd. of Health, II:242. *40th Ann. Rep.* N. Y. State Bd. of Health, II:195.
36. Newburg, N. Y.....	1918	5		Many	Gate valve opened by factory superintendent.	*Health News*, N. Y. State Dept. of Health, Oct. 1920, p. 260.
37. Auburn, N. Y.....	1908	58			Leaking check and gate.	*J. New Eng. W. W. Assn.*, 24:407.
38. Amsterdam, N. Y...	1920	22	1		Leaking check and gate.	Report on file.
39. Mechanicville, N. Y.	1920	15			Double checks leaking.	Report on file.
40. Seneca Falls, N. Y..	1920	102			Single check held open by stone and gravel.	Report on file.
41. Binghamton, N. Y..	1923	13				Report on file.

and the danger of pollution of the public supply in that way is only reduced, not eliminated, by two check valves, unless there is a regular and constant inspection of those check valves.

The object of all concerned should be to equip all private fire service connections so as to secure absolute safety against pollution of public supplies by back flow. A single rule only is suggested to govern the installation of connections between public water mains and private fire systems:

"No fire protection system, having an independent water supply which is unsafe for drinking, shall be connected with the public supply mains unless such connection is so equipped as to positively prevent the flow of water from the piping to the public system."

It is the opinion of your committee that the installation of double check valves may be made efficient in preventing pollution from independent fire supplies if regularly and systematically inspected, but only if such regular and systematic inspection is maintained. The difficulty of securing such regular and thorough inspection in all cases is realized.

Your committee also wishes to call attention to the value of requiring that private fire service connections discharge either into cisterns or elevated tanks where independent water supplies of doubtful quality are in use. Taking the public water to a cistern or tank above the flow line and delivering water to the fire protection equipment therefrom precludes the possibility of backflow.

Where an independent supply is used for private fire protection, the fire service connection from the public mains should discharge either into a cistern or elevated tank at or above the flow line and the protected property required to take water for the fire protection equipment from the cistern or tank to preclude the possibility of back flow.

When such an arrangement is not possible of attainment, double check valves should be installed with proper means for inspection and testing. . . . Such valves should be regularly and systematically inspected, and reports filed as to their condition.

2. Excerpts from the Conference of State Sanitary Engineers' Report Adopted June, 1921:[10]

The cases of the use of cross connections were divided into two kinds. For the first group, the committee came to definite and prompt agreement, namely, that when an impure independent supply was maintained for normal industrial purposes, any cross connection with a public supply, regardless of the devices that may be installed or the precautions that may be taken, would be an unsafe and altogether too dangerous procedure at any time.

For the second group, where a cross connection is to be made with a private fire protection system using impure water, but where no outlet of water is provided except through fire hydrant, sprinkler plug or hose connection, a somewhat less hazardous situation was recognized. Though the demands for complete safety require that the water served for human consumption must at all times be free from danger and hence connections with impure supplies totally disapproved, the committee came to the opinion that account must be taken of the temporary use in some circumstances of cross connections with effectual safeguards. It was believed that such *temporary permission* by the State Department of Health in *exceptional instances* for the use of a cross connection for a fire protection service should not ever become a permanent provision, *but after a due period* for the development of the public supply for adequate fire protection, *the permission would be revoked.* An instance of such a course is evidenced by the City of Hartford. Here in 1909 some of the first installations of cross connections with Factory Mutual Double Check Valves, were made. After 10 years had elapsed, an order was issued in 1920 giving the mills until September of this year, 1921, to completely sever all physical connections. The committee has been convinced by the large number of instances of the contamination of the public supply through cross connections that *such connections as a permanent measure should never be endorsed.*

The Committee recommends the adoption of the following principles:

Principle 1—*No cross connections* should be established or maintained between the public water supply system and any other water supply system, private or public, unless both water supplies are of safe sanitary quality and both supplies and the connection thereof have received the approval of the State Health Department.

Principle 2—In cases where it is necessary or advisable to supplement an impure private water supply with the public water supply distributed in the same piping system, the public supply must be made available by delivering it into a cistern, suction well or elevated tank, at an elevation above the high water line of such cistern, suction well or tank.

Recommended modifications of above principles for temporary application under exceptional circumstances:

While the committee is of the opinion that full safety demands such complete separation of the public water supply system from other water supply systems delivering impure water, the committee recognizes the relative degree of safety which can be provided by suitable check valve installations on connections between a public water supply and a piping system used for fire protection only.

The committee is cognizant of the fact that such connections may be proper and reasonable under certain conditions, and desires to express the following requirements which should be met in making and maintaining such installations:

1. Such connections should not be permitted where the available public water supply or private fire protection supply is adequate for fire protection purposes.

2. That the fire protection piping system shall not be connected with any other piping system upon or within the property served, and that there shall be no outlet from such fire protection piping system except through sprinkler head, fire plugs and hose connections. This requirement is intended to prevent a flow through check valves except at

times when a sprinkler head, fire plug or hose connection is open.

3. The cross connection shall be equipped with such devices as can most effectually prevent an inflow of water from the fire protection system to the public water supply system.

4. The committee is of the opinion that the most efficient and dependable device developed up to date (aside from the method described in principle 2 above) is the check valve installation recommended by the Associated Factory Mutual Fire Insurance Companies of Boston, Mass., consisting of two gate valves with indicator posts, two check valves of the Factory Mutual type, with drip cocks and gauges for testing, an alarm valve equipped with a recording pressure gauge, a by-pass meter around the alarm valve, all to be placed in a vault of water-tight construction accessible to ready inspection.

5. A systematic test inspection of the cross connection, including periodic examination of the interior of the check valves by the department in charge of the public water supply system, must be provided without which inspections the installations of the cross connections would be a highly dangerous health menace. The *inspection* must therefore be made *reliable, thorough* and *responsible.*

6. The committee views as a self-evident requirement that in every case where a cross connection is being considered for approval a thorough investigation will be made as to local conditions and as to the necessity and advisability of the cross connection and that the local municipal officials will be made fully acquainted with the circumstances and given due opportunity for presenting their views.

3. Excerpts from Engineer's Report, Hartford, Conn.:[5]

In the 10 years' experience in Hartford, with twelve sets of check valves, the *records show* that *eternal vigilance* only can keep these valves even *passably tight;* that they do leak on the slightest provocation; that sometimes both valves have been found leaking at the same time; and that there is no assurance that they will remain tight even for a short period after test.

It is well recognized by all fire insurance interests that proper fire protection to important factory or industrial works requires a secondary supply of water from a source independent of the primary supply. To accomplish this purpose, however, there are safe and approved methods which may be substituted for connections with a polluted source. Such methods of secondary supply, as from tanks and cisterns, are authorized and satisfactory to the majority of engineers versed in fire protection engineering.

From a water supply standpoint a principle is involved which is of practical application and not theoretical discussion. From the very nature of the case no argument can be successfully defended that there is no danger to health through these connections. On the other hand, from a fire protection standpoint, other approved means are at hand to accomplish the result.

4. Resolution passed by the Fire Protection Section of the American Water Works Association at the Annual Convention, Louisville, Ky. (April 30, 1925):

WHEREAS, cross connections between potable public water supplies and supplies from other sources have been the cause of a large number of outbreaks of typhoid fever and other water borne diseases, and

WHEREAS, check valves and other similar protective devices cannot always be depended upon, be it

RESOLVED, that no physical connection should be permitted between a potable public water supply and any other supply except as follows:

1. With another potable public supply.

2. With a potable supply which is regularly examined as to its quality by those in charge of the potable public supply to which the connection is made.

This prohibition to apply to all piping systems either inside or outside of any building or buildings, and be it further

RESOLVED, that definite programs should be inaugurated in each municipality to permanently eliminate all other connections.

The editor of the *Engineering News-Record* stated that "the resolution is in line with action taken a few years ago by the Conference of State Sanitary Engineers, with the regulations of at least one state board of health and a growing number of cities. The need for preventing cross connections is illustrated anew by typhoid outbreaks and deaths due to such connections, as our columns testify every few months."

Preceding this action by two years, we have the following resolution unanimously adopted by the North Carolina Section of the American Water Works Association in November, 1923:

RESOLVED, that there shall be no physical connection between the public water system and any private water supply system, wherein it is possible for contaminated water to pass to the public water supply system.

And that the State Board of Health be requested to notify all parties having cross connections that the same be removed or disconnected from the city water supply within a reasonable time.

The following letter of June 3, 1920, from the Chief Engineer, National Board of Fire Underwriters, New York City, to the *Engineering News-Record*, shows an appreciation of this health hazard:

Sir:—Perhaps it was not so intended, but the reference in the last paragraph of the editorial on "Leaky Cross Connections" in your issue of May 13, p. 939, might readily give the impression that fire protection engineers generally were in favor of cross connections between two supplies, one of which is unsafe or questionable.

The fire protection engineer is not the responsible party in making the connection originally or in its continuance. Insurance standards require, for complete reliability, two independent sources of supply, and the plant management or the municipal authorities may, and often do, use one source which is unsafe or questionable from a sanitary standpoint, for the reason that it is cheaper or easier.

The engineers of the National Board of Fire Underwriters do not, and we believe other engineers should not, favor such connections, but there are cases where they have already been made, and it is not possible, without the charge of discrimination, to refuse credit for them as emergency sources. It is, however, standard practice with many of the insurance bureaus to recommend secondary sources of supply which will be safe, as for instance, a storage reservoir.

The double check valve, designed some years ago for use on connections to sources of doubtful quality, has been permitted by some health authorities and has a satisfactory record. It should be installed most carefully and be maintained under a thorough inspection system.

(Signed) GEORGE W. BOOTH

Although a canvass of all the states has not been made on this subject, the following information has been secured:

Connecticut (recent communication)—"In all complete reports of this Bureau on public water supplies, we call attention to the danger from cross connections and the desirability of removing them."

Illinois (recent communication)—"It has been our practice in making inspections of public water supplies to attempt to ascertain whether or not there are any cross connections and then recommend to the local officials that such cross connection be abandoned."

Indiana—Since June 1, 1924, Indiana has required complete physical severance of public from private supplies.

Kansas—Regulation adopted in June, 1925, requires that all cross connections be eliminated on or before January 1, 1926, except where the cross connection is between a municipal water supply and a regularly inspected and approved potable private water supply.

Michigan—Recommends no direct physical connection between public and private supplies, but where this is not practicable has permitted the factory mutual double check valve system.

Minnesota—Since 1918 no physical connections have been permitted between water supply systems that are safe for domestic use and those that are unsafe.

New Hampshire—Feels that double check valves if inspected twice annually afford reasonably efficient protection.

Ohio—Has permitted cross connections between public and private water supplies with the use of double check valves, but has withheld approval of this method of procedure, for it believes that such connections are potentially dangerous.

Pennsylvania—Special permits are required for cross connections and granted only upon special investigation. A few installations of factory mutual double check valves have been permitted, and careful inspections are required. Where the public supply is the auxiliary supply for an industry, and an elevated tank is available, free discharge into tank is required with no possibility of back flow into public system.

Washington—On April 15, 1924, required complete severance of all cross connections, except that existing installations of factory mutual double check valves with provisions for inspection were allowed to remain until January

1, 1927, at which time complete severance will be required.

Wisconsin—Permits no new cross connections. Allows cross connections existing prior to 1924 to continue if protected by double check valves arranged for testing. Monthly inspections and reports are required, and the state board reserves right to require elimination of any cross connections. A recent communication expresses the feeling of the chief sanitary engineer: "We hope to ultimately secure the complete elimination of all cross connections."

Province of Ontario, Canada—Prohibits cross connections except that fire protection systems may be cross connected to public supplies under certain restrictions.

New York State—Cross connections are prohibited in the following twelve villages and cities: New York City, Albany, Altamont, Bangor, Bridgehampton, Buffalo, Canandaigua, Cohoes, Kingston, Port Chester, Rochester, Tuxedo Park.

Among the other states the following is a partial list of the cities in which cross connections are prohibited: Hartford and Stamford, Conn., Cambridge, Lowell and Springfield, Mass., Providence, R. I., Philadelphia, Pa., Cleveland, O., Terre Haute, Ind., St. Paul, Minn., Richmond, Va., Rockford, Ill., New Hanover, N. C.

SUMMARY

To sum up, we find that 4 states absolutely prohibit cross connections; a fifth state prohibits cross connections on new installations; and most of the other states, while recognizing the potential danger, permit cross connections if provided with factory mutual double check valve systems arranged for ready inspection. Within our own state, New York, 12 villages and cities have realized the potential danger from polluted auxiliary supplies and require complete severance.

As to the unreliability of double check valves even with frequent inspections, we have many examples. In Hartford, where weekly pressure tests by the city water department were made with a complete overhaul of the valve three times a year, 61 times the check valves were found to be leaking, 55 times in one check valve and 6 times in both valves.

An inspection by the New York State Department of Health in a large city in that state in 1924 of a cross connection between the public water mains and a polluted fire supply where the cross connection consisted of three check valves and two gate valves, showed that the valves were not tight. At the time of the inspection, in order to test the condition of the check valves, the fire pump was started without closing the gate valve and immediately the pressure gage on each side of the check valves showed an increase in pressure of about 50 pounds per square inch, indicating that at least two of the check valves were partly open and not operating. The hoods on two of the check valves were removed and it was found that the hinges had nearly rusted off, with the result that the flaps on the check valves had dropped down, leaving them about half way open in each case. When last inspected by the city authorities, they had been reported as being in a satisfactory condition.

In 1924 an investigation by the state health department of the status of cross connections in another city of New York State where regular and careful inspections had been made by the city water department, revealed the following facts: A recent inspection made by the city water department of 22 double check valves indicated that 6 sets were leaking in both valves, 15 sets were leaking in one valve and only one installation showed no leak.

Inasmuch as the usual method of testing the check valves is by pressure gauges, the experience of an inquisitive water works superintendent in Canada is worthy of note. He found that in many cases where no leakage was indicated by the pressure gauge, leakage was taking place as shown by a dye test.

Regular inspection, if reliable, may prevent failure of check valves through tuberculation or corrosion but it will not prevent failure due to obstructions of gravel, sticks, and similar substances.

Millions of dollars have been spent in New York State to assure safe water supplies for the people. Leaky check valves on cross connections to industrial auxiliary supplies from polluted sources, with consequent possible contamination of the public supplies, tend to defeat the purpose of this costly expenditure for safeguarding the public health.

For the past 8 or 10 years the question of cross connections has been a matter of considerable concern to the state department of health. In 1918, the system of double check valves of approved design when properly installed in accessible manholes and provided with proper testing and inspection facilities was tentatively approved. Subsequent experience elsewhere and in this state has shaken our faith in the ability of this device to afford the necessary protection. In an actual test in one city in this state 27 per cent of the installations were affording no protection and only 1 out of 22 installations was tight in both valves.

Action on the part of municipalities to secure complete physical severance between the public water supply and private auxiliary supplies, has frequently aroused protests from industrial concerns and fire insurance companies. It is difficult to account for these protests, in light of the information obtained by the Surgeon General of the U. S. Public Health Service in response to a questionnaire on interconnections between domestic and polluted water supplies. This questionnaire was sent out by the Surgeon General to various fire underwriters organizations, and 23 replies were received representing organizations operating in all sections of this country. Of this number, 17 either discouraged the use of double check valves or did not permit their use, while 2 stated they followed the state control. The underwriters who protest against the elimination of cross connections contend that the menace to health through cross connections is slight as compared with the increased fire hazard. The elimination of cross connections, however, need not increase the fire hazard, although it may increase the cost of maintaining an equal fire protection through the use of overhead tanks or underground cisterns. The crux of the matter is, therefore, not a question of health vs. fire protection, but health vs. dollars and cents.

CONCLUSIONS

1. The existence of cross connections between the public water supply and any other water supply system, private or public, unless both water supplies are of safe sanitary quality, is a serious menace to health.

2. The pollution of the public water supply and epidemics of typhoid fever and other enteric diseases have on numerous occasions been definitely traced to such cross connections.

3. While the type of equipment for preventing backflow from auxiliary supplies into the public water supply system, making use of double check valves of special design, installed in readily accessible manholes and arranged with facilities for testing, is an improvement over single check valves or the ordinary double check valves, the protection afforded is not absolute nor positive.

4. It is doubtful if the present method of testing double check valves by pressure tests is sensitive enough to reveal small quantities of backflow.

5. The existence of cross connections with check valves subject to leakage and backflow from polluted sources into the public water supply, tends to defeat the purpose of costly expenditures involved in securing safe water supplies for the public.

6. Complete physical severance between public water supplies and polluted auxiliary supplies is the only positive means of preventing such pollution of the public water supply.

7. Inasmuch as overhead tanks or underground cisterns with fire pumps, as auxiliary fire supplies are accepted and

approved by the fire underwriters, the elimination of cross connections need not increase fire hazard.

After long careful consideration of this question of cross connections between public water supplies and water from other sources and the question of dual water supplies in manufacturing and other establishments, the Public Health Council of the New York State Department of Health on November 12, 1925, adopted the following amendments to Chapter VII of the Sanitary Code. These regulations have the force and effect of law in New York State.

SANITARY CODE—CHAPTER VII
Miscellaneous

Regulation 15-a. Certain cross connections between water supplies not permitted—No officer, board, corporation or other person or group of persons owning or having the management or control of any potable water supply furnished to any municipality or water district, shall permit after July 1, 1926, any physical connection between the distribution system of such supply and that of any other water supply, unless such other water supply is regularly examined as to its quality by those in charge of the potable water supply to which the connection is made and is also found to be potable. This prohibition shall apply to all water distribution systems either inside or outside of any building or buildings.

Provided, that, where such physical connections now include two gate valves with indicator posts, two check valves of the special Factory Mutual Fire Insurance design or equivalent with drip cocks and gauges for testing, all located in a vault of water-tight construction accessible for ready inspection, the date of discontinuance may be extended until July 1, 1928.

Regulation 15-b. Permissible arrangements where dual supplies are used—If a potable water supply is used as an auxiliary supply delivered to an elevated tank or to a suction tank, which tank is also supplied with water from a source with which cross-connections are not permitted by regulation 15-a, such tank shall be open to atmospheric pressure and the potable water supply shall be discharged at an elevation above the high water line of the tank.

Regulation 15-c. Non-potable water in industrial plants to be rendered unavailable for drinking—Wherever a potable public water supply is available for drinking and for other personal or domestic purposes in any industrial plant, unless such other supply is approved by the local health officer. If no such public water supply is available, the water for drinking or for other domestic purposes shall be of safe, sanitary quality approved by the local health officer. If the water supply for industrial or fire protection purposes is obtained entirely or in part from a source not approved for drinking purposes, this supply shall be distributed through an independent piping system having no connection with the systems for drinking and for other domestic use, and the outlets shall be so arranged as to be inaccessible for drinking.

BIBLIOGRAPHY

1. Ackerman, J. W.; Burnham, H. A.; Gwinn, D. R., and Davis, E. E. Double Check Valves on Water Supplies. Discussion. *J. Am. W. W. Assn.*, 8, 6:650–2 (Nov.), 1921.

2. Leaky Cross-Connection Kills Fifteen. Editorial. *Eng. News-Rec.*, 84, 20:939 (May 13), 1920.

3. Booth, George W. Leaky Cross-Connections. Communication. *Eng. News-Rec.*, 84, 23:1124 (June 3), 1920.

4. Angus, W. M., and Francis, Carl. Leaky Cross Connections Located by Alkali Test. *Eng. News-Rec.*, 84, 25:1187–8 (June 17), 1920.

4a. Correspondence by H. A. Whittaker (Minnesota) *Ibid*, p. 1219.

5. Abolition of Double Check Valves on Hartford Water Works. *Eng. News-Rec.*, 87, 1:12–13 (July 7), 1921.

6. New Hampshire Water Cross-Connection Control. *Eng. News-Rec.*, 87, 10:396 (Sept. 8), 1921.

7. Water Works Cross-Connections at Hartford, Conn. *Eng. News-Rec.*, 87, 10:390, 409–11, 464 (Sept. 8), 1921.

8. Water Supply Cross Connection Rules of Ontario Board of Health. *Eng. News-Rec.*, 87, 9:374 (Sept. 1), 1921.

9. Burnham, H. A. Development of the F. M. Double Check Valves as a Safeguard for Public Water Supplies. *J. Am. W. W. Assn.*, 8, 3:222–32, 1921; also *Canad. Eng.*, 40, 6: 203–6, 1921.

10. Report of Committee on Cross-Connections, By-Passes and Emergency Intakes on Public Water Supplies. Conference of State Sanitary Engineers, Boston, Mass., June, 1921.

10a. Abstract of Reference 10 by the chairman. *J. Am. W. W. Assn.*, 9, 2:343–7, 1922.

11. Reference to action of North Carolina Section of A. W. W. A., regarding cross-connections. *J. Am. W. W. Assn.*, 11, 3:723 and 726, 1924.

12. Cross Connections. McKean Maffitt. *J. Am. W. W. Assn.*, 11, 4:856–9, 1924.

13. Saville, C. M. Public Water Supply Contaminated by Interconnected Private Water Supply. *A. J. P. H.*, 10:724–28 (Sept.), 1920.

14. Ackermann, J. W. Pollution of City Water Through Check Valves on Private Fire Protection Plants. *Munic. Eng.*, 39, 5:351–4 (Nov.), 1910.

15. Siems, V. B. Water Supply for Fire Protection. Abstract. *Eng. News-Rec.*, 94, 19:771 (May 7), 1925.

16. Safer Water Supplies. Editorial. *Eng. News-Rec.*, 94, 19:753 (May 7), 1925.

17. Biennial Reports. New Hampshire State Board of Health 1919–20, pp. 70–72 and 1921–22, pp. 40–42.

18. Gage, S. D. Dangerous Water Supply Connections in Manufacturing Establishments. *Quart. Bull. R. I. State Board of Health.* III, 4:26–30, 1917.

19. Dangers from Dual Water Supplies. *Notes on Preventive Medicine for Medical Officers,* U. S. Navy, Aug. 15, 1921, p. 11.

20. Ackermann, J. W. Special Check Valves on City and Factory Water Supply Inter-Connections, Auburn, N. Y. *Engineering News,* 67, 24:1138–9 (June 13), 1912.

21. Ackermann, J. W. Testing Check Valves. *Engineering News,* 71, 21:1133–6 (May 21), 1914.

22. Saville, C. M. Pollution from Private Fire Services. *Fire & W. Eng.,* Apr. 26, 1922.

23. Saville, C. M. Some Water-Works Experiences in Hartford, Conn. *J. New Eng. W. W. Assn.,* 30, 2:239, 1916.

24. Scofield, C. L. Value of Sprinkler Protection and Efficiency of Standard Check Valves. *Canad. Eng.,* 40, 6:202, 1921.

25. Convention of Canadian Water Works Officials. *Canad. Eng.,* 40, 6:212–16, 1921.

26. Saville, C. M. The Use and Discard of Auxiliary Fire Protection from a Polluted Source. *J. New Eng. W. W. Assn.,* 36, 392–425, 1922.

27. Chase, E. S. Dangers to the Sanitary Quality of Public Water Supplies. *J. New Eng. W. W. Assn.,* 37, 1:16–43, 1923.

28. Cross-Connections Put Under Control in Utica, N. Y. *Eng. News-Rec.,* 89, 21:891, 1922.

29. Report of Committee on Private Fire Protection Service. *J. Am. W. W. Assn.,* 6, 4:679–784, 1919.

30. Danger of Contamination of Water Supply by Back Pressure from Fire Pump. *Proc. Am. W. W. Assn.,* 1910, pp. 227–33.

31. Testing Fire Service Check Valves. Discussion. *Proc. Am. W. W. Assn.,* 1910, pp. 663–668.

32. Ackermann, J. W. Testing of Check Valves. *J. Am. W. W. Assn.,* 1:90–94, and 3:546–8, 1914.

33. Atkinson, E. The Relation of Waterworks Engineers to the Fire Service of Factories. *J. New Eng. W. W. Assn.,* 17, 1:69, 1903.

34. Check Valves and Their Unreliability Discussion. *J. New Eng. W. W. Assn.,* 24:380, 1910.

35. Outbreak of Typhoid and Dysentery at the Chicago and Alton Shops at Bloomington, Ill. *J. Am. W. W. Assn.,* 7, 4:560–68 (July), 1920.

36. Typhoid Fever and Cross Connections in Illinois (Sterling). *Eng. News-Rec.,* 94, 13:526–27 (Mar. 26), 1925.

37. Dorisy, C. E. Epidemic of Typhoid Fever and Other Intestinal Diseases in Everett, Wash., July, 1923. *Pub. Health Rep.,* 39, 13:605–11 (Mar. 28), 1924.

38. Another Cross Connection Typhoid Outbreak. *Eng. News-Rec.,* 91, 7:267, 429, 1923. (Rockaway, N. J.) (Also *New Jersey Public Health News,* 8, 7:461.)

39. Harrington, T. F. An Epidemic of Typhoid from Sewage Pollution of City Water Supply. *Jour. A. M. A.,* 41, 25:1511–13 (Dec. 19), 1903. (Lowell, Mass.)

40. A Small Outbreak of Typhoid Fever. Note in *Engineering News,* 63, 17:507 (Apr. 28), 1910. (Winnipeg, Can.) (Also in *A. J. P. H.,* Feb., 1910.)

41. Dual Water Supplies and Typhoid Fever at Philadelphia. *Engineering News,* 70, 21. Nov. 20, 1913. (Philadelphia, Pa.)

42. Another Illinois City Almost Scored a Typhoid Epidemic. Letter by H. F. Ferguson. *Eng. News-Rec.,* 86, 7:310 (Feb. 17), 1921. (Maywood, Ill.)

43. Report on Typhoid Outbreak in Utica, N. Y. January, 1917. *38th Annual Report,* State Department of Health, 1917, p. 539–52.

44. Report on Typhoid Outbreak in Rensselaer, N. Y. *Ibid.,* p. 501–3.

46. Little, B. C. Waterworks Experiences. *J. Am. W. W. Assn.,* 7, 5:648, 1920. (Rochester, N. Y.)

47. Secondary Water Supplies, Their Dangers and Value. *J. New Eng. W. W. Assn.,* 24, 3:377–415, 1910.

48. Filter Operation at Lawrence, Mass. *J. New Eng. W. W. Assn.,* 22, 2:233, 1908.

49. Thomas, E. J. How a Public Water Supply Was Polluted by a Private Fire Service and the Consequences. *Proc. Am. W. W. Assn.,* 1913, pp. 153–169. (Lowell, Mass.)

50. Typhoid in Circleville, O. *Annual Report Ohio State Board of Health.* 1914, pp. 724–30.

51. Typhoid in Springfield, O. *Annual Report Ohio State Board of Health.* 1911, p. 469.

52. Cross Connections and Typhoid Again. Editorial *Eng. News-Rec.,* 92:348, 1924. (Fort Wayne, Ind.)

53. Report on Typhoid Fever in Amsterdam, N. Y., dated January 3, 1921, New York State Department of Health, Division of Sanitary Engineering.

54. Typhoid from Cross Connections Again. *Eng. News-Rec.,* 89:959, 1045, 1922. (Franklin Furnace, N. J.)

55. Final Report on Franklin Furnace Outbreak. *Eng. News-Rec.,* 91:429, 1923.

56. Epidemics of Typhoid from Water Supply. Editorial *Jour. A. M. A.,* 68, 6:465–6, 1917.

57. Typhoid Outbreak at Winona Lake, Ind., Due to Cross Connections. *Pub. Health Rep.,* Aug. 21, 1925, pp. 1761–3.

58. Horton, T. Waterborne Typhoid Fever. *Health News,* New York State Department of Health, Oct., 1920, pp. 256–69.

THE RELATION BETWEEN RIPE SLUDGE AND INCOMING FRESH SOLIDS*

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IT HAS BEEN customary to calculate the capacity of the sludge compartments of Imhoff tanks on the basis of a certain number of cubic feet per capita. Eddy[1] in a paper "Imhoff Tanks—Reasons for Differences in Behavior," read before the American Society of Civil Engineers and discussed by Downes and Skinner, has considered in detail the relation of depth of the tanks to sludge digestion. Downes concluded that "the slot of an Imhoff tank should be placed with due consideration of the progress of digestion which will have been attained at the time when the freshly deposited solids (without shrinkage) have accumulated to a depth equal to the distance between the bottom of the tank and the slot."[2] Mr. Eddy agrees with him that "the slot must be placed sufficiently high to permit the accumulation of sludge in quantities estimated to occur in the time interval required for satisfactory digestion."[3] It is our impression that Mr. Downes had in mind more than sufficient capacity of storage of sludge during the winter months for he calculated the deposition and accumulation of fresh solids in comparison with their digestion.

At the suggestion of Dr. Imhoff, the superintendent and chemist of the Plainfield plant, Mr. Downes, had one of his tanks cleaned and altered so that the slots were placed as nearly in accordance with the conclusion cited above as was practically possible. This altered tank was put into operation anew on April 21, 1924. The bottom of the tank was covered with 30 inches of old sludge for seeding before sewage was admitted. From the beginning of operation this tank was watched closely and chemical, bacteriological and zoölogical analyses made at frequent intervals. It soon became apparent that sludge digestion was not progressing at the expected and desirable rate. Figure I shows the production of ammonia in comparison with carbonates, total acidity and pH values in the tank during the first 5 months. The first striking feature of this graphical representation is that from the end of April to the end of August practically no changes took place in NH_3, CO_3 or total acidity production. The quantities of ammonia and carbonates produced were considerably below normal. All our data collected indicate that a minimum of 300 p.p.m. ammonia should be present in the liquid, while 1300–1500 p.p.m. carbonates is correlated with good and rapid digestion. That slight changes occurred in the tank is indicated by the fluctuations in pH values. By the end of August a sudden increase in carbonates occurred followed by an increase of ammonia and total acidity. On September 18 this tank had to be rested on account of heavy foaming and later on, due to the necessity of handling large volumes of sewage in tanks which were working decidedly abnormally, the tank was used for a storage tank of partially digested material pumped out of other tanks. It is evident from the pH values obtained that during the first

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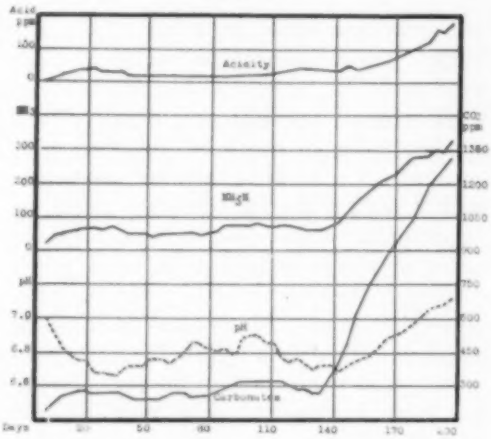
four months of operation digestion activities were progressing at an undesirably slow rate with simultaneous production of acid materials. It took considerable time after the tank was allowed to rest to bring the pH value above 7.0 (neutral point) where it remained until the termination of the experiment.

FIGURE I



SHOWING AMMONIA, CARBONATES, TOTAL ACIDITY AND pH IN TANK DURING FIRST 5 MONTHS

CARBON DIOXIDE CONTENT

Gas production increased rapidly during the first few weeks of operation with the result that the scum blanket rose considerably and some foaming phenomena began to occur. Simultaneously with increasing gas production the CO_2 content of the gas rose from 4 to 21 per cent in the middle compartment and to 24 per cent at the inlet end. From this point on a decided decrease occurred in CO_2 content which looked at the time very encouraging, especially in view of the fact that the average temperature in the tanks was rising continuously and still better results could be expected. Carbon dioxide content of the gas was always highest from the inlet end with the usual oscillations in the curves. A few complete analyses of the gas made at different dates are given in Table I. The high methane content of the gas is of unusual interest. According to theoretical considerations, high methane content is desirable in sludge digestion. We recorded methane production ranging from 69.4 to 84.1 per cent; the highest amounts being present at the beginning of the experiment with a decided drop after 14 days. This drop is very significant in view of the calculations given below.

From a number of experiments conducted in the Sewage Experiment Station laboratory on fresh solids digestion, we know that a large proportion of the gas produced at the beginning of digestion consists of CO_2, followed by a decrease and after sufficient incubation followed again by an increase of CO_2. The influx of fresh solids after this tank was put into operation accounts for the rise in CO_2. The decrease in CO_2 content after about one month's operation could be due either to a more rapid "methane digestion" or to an inadequate supply of ripe sludge to cope with the amounts of incoming fresh solids. Ordinarily CO_2 production is high at the beginning when fresh solids alone are digested; when insufficient ripe sludge is present, large and sometimes rapid changes take place.

TABLE I

Analyses of gases from tank 5

Date	Days operating	CO_2 %	O_2 %	CH_4 %	N_2 %
April 21	1	4.1	0.0	81.2	14.7
April 23	3	5.6	0.0	84.1	10.3
May 5	14	12.0	0.0	69.4	18.6
June 1	40	18.9	0.0	76.1	5.0
Aug. 18	119	16.2	0.2	78.0	5.6

These changes are due to an unbalanced condition which exists between the different groups of organisms present during the digestion processes. Such an unbalanced condition can cause an enormous increase in CO_2 depending on the groups of organisms which are dominating. This unbalanced condition is sometimes accounted for by the statement that the amount of ripe sludge was possibly inadequate to cope with the incoming fresh solids. It could be said in such case that the desired activities are retarded.

The analyses show a constant increase in bacterial population during the first 6

weeks from 1.4 to 88.5 millions per c.c. The average bacterial population for the first 6 weeks was 31.5 millions per c.c., as contrasted with 64.7 millions during the same period for a tank which had been running continuously. It took 5 months before the bacterial numbers were comparable in the new and old tank. The digesters of solid protein were more numerous in the tank than the hydrogen sulfide producers, but the hydrogen sulfide producers increased at a more constant rate, indicating that the balance between the different organisms governing digestion was not maintained. Moreover, there were some marked rapid fluctuations in numbers of the different organisms.

It is interesting to state that for a long time after refilling, this tank did not have what is regarded as the usual tank fauna. The numbers of protozoa remained comparatively low in spite of the daily influx of animals with the influent. Moreover, out of 18 kinds of protozoa most abundantly present, only 6 have ever been common in other tanks. Most of these forms appeared, increased to a maximum, then declined and disappeared. This tank also showed numerous amebae; at times reaching 8400 per c.c. practically all of one species. Finally, for a long time after refilling, this tank showed living nematode worms. These zoölogical facts alone offer abundant proof that it took the tank a long time before its physico-chemical state came to an equilibrium recognized as being necessary for efficient digestion.

It was pointed out above that the scum blanket rose rapidly the first 3 weeks accompanied by foaming phenomena. This scum blanket rose most quickly at the inlet end, resulting in actual foaming 22 days after the tank was put in operation. The scum subsided with the change of inlet, to rise again early in July. The sudden increases in bacterial numbers corresponded to the rise of scum. Bacteria able to digest albumen were highest when scum and CO_2 production were lowest. All these facts together suggested that the relation between the amount of old sludge and incoming solids was not correct. A few calculations show the actual relations. The total amount of incoming sewage is 3.3 m.g.d. containing about 200 p.p.m. of solids. The capacity of the tank without hoppers up to the slots is 9000 cu. ft. There were 3 tanks in operation receiving about 220 gallons or 29.5 cu. ft. of fresh solids on dry basis per tank per day. The amount of old sludge used for seeding was approximately 3750 cu. ft. (95 per cent moisture) so that the total sludge present on the basis of dry solids was 187.5 cu. ft. The total incoming solids were 29.4 cu. ft. or 15.7 per cent of the sludge present, assuming that the specific gravity of the dry fresh solids is the same as that of the dried sludge, or in other words, the addition was 1 part of dry fresh solids to 6.37 parts of dry sludge every 24 hours.

A series of laboratory experiments conducted under controlled conditions, to determine the optimum amount of fresh solids which can be handled by a given quantity of old sludge, gave a fairly definite insight as to what happens when too much fresh solids are added. In these experiments certain definite quantities of fresh solids were added daily to known amounts of ripe sludge and the progress of digestion closely studied for about 4 months. The additions of fresh solids were daily 5, 10, 15 and 20 per cent by volume, or 1, 2, 3 and 4 per cent on a dry solids basis. The detailed figures and discussion of this experiment will be published in the forthcoming annual report of the New Jersey Sewage Experiment Station, and it will suffice to state here some general conclusions.

A comparison of the chemical, bacteriological and zoölogical data obtained emphasized one outstanding fact: the ash content of the mixed solids in process of digestion and the numbers of bacteria and protozoa increased with the addition of fresh solids up to a certain percentage. Beyond that point there was no further

proportional increase, but the ash content and bacteria decreased, while protozoa remained constant. This point is near an addition of 2 per cent on the dry basis or 10 per cent by volume of fresh solids. At this point there is not only a high average of bacteria and a remarkable smoothness of the bacteriological curve, but also a similar smoothness in the curve for ash content and reduction of solids. These phenomena seem to indicate that this point of equilibrium is the optimum for producing a balanced condition or most efficient digestion. As soon as more fresh solids are added, this balanced condition is upset and irregularities in the curves for bacteria, chemical products and protozoa make their appearance. With additions of 1 per cent fresh solids there is a maximum increase in bacteria and ash content, but the plotted curves show that the increase is erratic, indicating a situation similar to larger additions of fresh solids but on the other side of the optimum balanced condition. However, these smaller quantities can be handled efficiently without causing any undesirable disturbance. This condition might be expressed by saying that the tank is running below its possible capacity.

It has been assumed, and our experiments seem to bear out this assumption, that it takes approximately 30 days for minimum satisfactory digestion of fresh solids if sufficient ripe sludge is present to overbalance the incoming material. The experiments briefly discussed above show that if 2 parts of dry fresh solids are added daily to 98 parts of ripe sludge (dry basis) digestion takes a normal course, while when 3 parts are added digestion is impaired. With the addition of 4 per cent dry fresh solids, the sludge changes color gradually from black to a peculiar greenish hue and later to yellowish brown, becoming acid with an obnoxious odor. Calculations carried out by Mr. Downes on the basis of his figures presented in his discussion of Mr. Eddy's paper referred to at the beginning of this article, agree markedly with our laboratory findings. He calculated that additions of 2 per cent daily are about the limit the tanks can handle.

Returning to the discussion on the altered tank, we found that the tank started to foam 22 days after it was put into operation. A decided drop in proportion of methane produced occurred 14 days after the tank was started. If 30 days digestion is taken as criterion it would seem that only enough ripe sludge was present to take care of about 14 days' addition of fresh solids. It seems clear therefore that the relation between ripe sludge and fresh solids is fairly definite and should be kept as nearly constant as practical operation will allow, and that a change in the construction of a tank as such has no value whatsoever if this relation is not taken into account. It is also clear that computing the required capacity of a sludge compartment in terms of cubic feet per capita must necessarily be inadequate. Mr. Eddy has already pointed out that in such a comparison the effects of temperature also have to be reckoned with.

Finally, it may be concluded that foaming is primarily caused by an incorrect relation between old sludge and fresh solids, which can be aggravated by the reaction of the tank contents. Other factors like excessive grease, excessive masses of carbohydrates (mash from illicit distilleries), etc., may at times upset the balance in the tank temporarily, or when the balance is at a critical point cause more permanent troubles.

Experiments are now under way in our laboratory to determine the optimum reaction of the material in the tanks for efficient digestion and a study of the means to correct the reaction to the desired point.

REFERENCES

1. Eddy, H. P. *Transactions Am. Soc. Civil Engrs.*, Vol. 58, 1925, pp. 465, 510.
2. *Loc. cit.*, p. 514.
3. *Loc. cit.*, p. 535.

THE HEALTH DEPARTMENT AND FREE SERVICE*

ETHICAL LIMITATIONS of the health department in regard to rendering free service to individuals, was the basis of the second discussion of the Forum Session at the Fifty-fourth Annual Meeting of the Association at St. Louis, Missouri.

Francis E. Fronczak, M.D., Dr.Sc.P.H., opened the discussion by saying:

The discussion this afternoon is built upon a much mooted question: "To what degree is a health department justified in extending free service without encroaching upon the field of cure in (a) periodic health examinations for adults, (b) dental service, and (c) developing specialties in a child hygiene program such as nutrition, posture and eye service?"

I appreciate the fact that to discuss this question fully is treading on debatable and somewhat dangerous ground. But viewing it from the point of a sanitarian, my own answer is that the health departments are justified to a very considerable degree in extending the so-called free service, and can do so without doing any material harm to anyone whose work is limited to the field of cure.

A thorough examination should be made yearly of all persons, not only children but adults, and almost invariably some physical or mental defect will be found. This physical examination should be extended by health departments. So much propaganda has been spread fostering this procedure of periodic health examination, especially of adults, and so many agencies have been engaged in this type of work, that the subject has become monotonous to many, including some of my audience. Despite this, it is a fact that the physical and mental examination of the apparently well promises at present to become not only a most powerful factor in the extension of medical service but also a most valuable addition to our armamentarium in determining the trend of public health administration in the future, as well as a vehicle for cementing a closer coöperation between practitioners of medicine and public health officers.

PREVENTION NOT CURE

In most instances the department of health is now and should be limited to the field of prevention and should not encroach upon the field of cure. Certainly the overburdened medical personnel of our health departments should not be called upon to perform duties which are within the scope of activity of a general practitioner.

The health department has always been concerned with environment and with the condition of health of large groups, practice of medicine by the wholesale—a term so appropriately used by Dr. Evans of Chicago. Yet there is every indication that the trend of the public health movement is even now towards the safeguarding of health through measures that may be applied directly to the individual.

"It must be admitted that in many parts of the United States, practitioners of medicine have during the past few years developed a critical if not an antagonistic attitude toward preventive medicine and public health administration. This attitude in many instances has been developed from a misconception concerning the aims of the health office. The practitioner has been led to believe that the public health administrator sought to compete with the physician or to make medicine partake of the nature of a sort of public utility. Of course, this misconception is based upon no reasonable grounds whatsoever. The periodic medical examination recommended for adults and urged by health officers has done much to remove any doubts concerning the attitude of the health officer towards the commercial phases of medicine that may have existed." †

From many statements made by men who are interested in public welfare, the conclusion is

* Abstract of the discussion at the Forum Session of the Fifty-fourth Annual Meeting of the American Public Health Association at St. Louis, Mo., October 21, 1925.

† Health Examination and the Health Officer, by Walter M. Dickie, M.D., *A. J. P. H.*, 15, 10:853 (Oct.), 1925.

quite generally accepted that health departments are justified in extending their services by advocating and instituting periodic health examinations for adults. In such service they aid, rather than encroach upon the field of cure, for by initiating these periodic examinations, they pave the way for the practitioner to assume and continue them.

DENTAL SERVICE

Many dental clinics have been established in connection with the department of health and with the coöperation of dental colleges and hospitals, which serve a class deserving and needing free service. Health departments everywhere are the means of instituting well balanced methods of instruction in regard to dental matters, as well as prophylaxis and follow-up work along those lines in the schools and health centers, clinics and dispensaries.

The idea of consulting a dentist every 6 months has been drilled into every child in recent years, and despite the fact that we are constantly threatened by the magazines with many diseases bearing dreadful names, the condition of the teeth of the nation is becoming more satisfactory with each passing year.

Dr. Park gives us food for thought in this statement (and only this morning the same idea was expressed on this platform): "I believe if expectant mothers received ample, well balanced diets in which green vegetables were abundantly supplied and cow's milk was regularly taken, and if our patients were kept in the open air and sun and if their babies were placed in the direct rays of the sun for a part of each day and were fed cod liver oil for the first 2 years of life, more could be accomplished in regard to the eradication of decay of teeth than all other treatments put together."

Here again a question of education arises. The care of certain classes is even a more important obligation of our health departments than of the many agencies which are vitally interested in periodic health examinations including oral hygiene and other specialties.

The leading life insurance companies are eagerly spreading helpful propaganda. Our immense industrial corporations, hospitals and health departments are all in accord that oral hygiene and prophylaxis should be taught in our schools and subjects should be presented by oral hygienists with teaching experience. The prophylactic work should be carried on in our clinics and health centers by oral hygienist practitioners. This instruction and care of the teeth begun in early youth and continued through adulthood leads the individual to consult the oral surgeon, not only when such consultation becomes absolutely necessary, but as a means of prevention.

In teaching those citizens the indispensability and real value of the services of a first class dentist, it aids not only the individual himself, but the profession. Therefore, we conclude also that by extending free dental service the health department has increased the practice of the dental practitioners instead of encroaching upon their field.

THE CHILD HYGIENE PROGRAM

The third question before us this afternoon is: "To what degree is the health department justified in extending free service without encroaching upon the field of cure in developing specialties in a child hygiene program such as nutrition, posture and eye service?"

To my mind it is imperative that the health department should develop the specialties in a child hygiene program. For instance the underweight and malnourished children in our public schools present a problem which places that class of work in a special department. To correct this condition, the coöperation of the parents, the health department and the family medical attendant is greatly needed. I can assure you that through the department of health of Buffalo, not hundreds but thousands of cases yearly are referred to the medical practitioner. Please notice that I said "referred" not "cured."

In a very recent issue of his well edited weekly bulletin, *Chicago's Health*, which was dedicated to "Posture of Children," Health Commissioner Bundesen of Chicago said: "Postural defects should be corrected early and a special department should have charge of this important branch of school life."

Apparently the average parent does not pay much attention to the posture of the child; yet everybody will admit that posture is important from a standpoint of health, beauty and even economic efficiency. For these reasons the teaching of right posture and its good effects is essential. If incorrect posture is due to poor vision, poor nourishment or undeveloped muscles, the finding of these is within the province of preventive medicine.

This subject is a big one and though it is almost entirely a medical one, it should be handled by one who has studied posture especially.

During the recent series of examinations in one of Buffalo's largest high schools, 135 boys were given a complete physical examination in one morning. Four doctors participated, each doctor covering his own specialty. Eight cases of 20/80 vision both eyes were found, yet none of these boys wore glasses and they were juniors. With the rate of 8 out of 135 with 20/80 vision, how many in our present great representation of high school pupils are nearly blind, and why? These cases should be found early and there is only one recommendation to make, namely, that a special medical division should be operating under our health departments, spending their time on visual defects only, and referring them to the family physician. But defective vision is only one of many defects that are found.

There are many methods of bringing before the parents to-day the necessity of correcting the children's nutrition, posture, vision, hearing and other defects. The health departments through physical examinations in the schools and through the so-called free service extended, can accomplish much and are justified in taking every advance step in a subject so vital.

An educational program of lectures and publicity accomplishes much. Such a program should be followed up in the schools and the gross defects corrected by special classes under medical supervision. Not only should the child be educated along this line, but the mother, too, should receive instructions in child hygiene and proper nutrition at well-baby clinics and dispensaries, which are usually divisions of the local health department.

I repeat that our health departments should not treat diseases but they should discover them in individuals through their medical examination service. The health department of Buffalo does not enter into what you may call the curative part, for the activity should be and is purely the function of the physician, the dentist, and the medical specialist. But the health department by extending its free service in thorough physical examinations points out the way by which individuals can avoid the dangerous rocks of a threatened physical breakdown or wreck.

Chairman Charles F. Wilinsky, M.D.—From a health department point of view, when we speak in terms of nutrition, posture, and dental service, we speak in terms of child hygiene. I am going to ask Dr. Keene, chairman of the Child Hygiene Section, to open this discussion.

Charles H. Keene, M.D.—It seems to be necessary to assume certain premises: First, that there are plenty of funds for this broadening of the activities of the health department. You well know that most of the departments at the present time have not funds to spread out into this comparatively new effort. We ought to remember, too, that in these phases of health effort the cost per case is quite high.

Therefore, we have to realize that the effort must be largely an educational one, and that these cases are to be sent out from the clinics through the community as propaganda as a means of showing what can be done under proper routine treatment of these deficiencies and defects. Such activity under conditions of sufficient funds seems to be very definitely a proper activity of the health department, because it is largely preventive.

We shall not only prevent more serious defects and deficiencies in the individuals put under treatment, but we shall also prevent defects and deficiencies, allied to the kinds treated, which already exist in others in the community simply because of the examples which come out from these clinics. We get back then to the thing which Dr. Fronczak mentioned, that these clinics would have to be looked upon very largely as a process of education; education of the community if such a thing be possible, and education of the parents to teach them that it is a part of their duty to see that the nutrition, the posture, and the eye deficiencies are given early, accurate and scientific care and attention.

With the proviso, then, that you have sufficient funds (and the concept that this is merely a "salting" of the community with corrective cases, so they may be used as "take-offs" for educational propaganda), I feel very strongly that the health departments ought to establish such activities. Advances in public health depend, basically, upon better education in health matters.

William S. Kester, M.D.—One phase of this subject that I have not heard discussed, and in fact, I do not remember having heard it discussed at many of the public health meetings I have attended though I feel it is very important, is the matter of pauperizing persons. I thoroughly believe in the health department conducting a certain amount of medical service and clinics. I think a certain amount of paid service would get us farther than the giving of service, as we have done in the past. For instance, if we charged 25 cents for complete

inoculations against diphtheria, I believe the public would appreciate the service much more than having it given to them free.

There has been a tendency in the past for most social organizations, health departments and various other agencies to give service absolutely free. I think we pauperize a great many people by giving them free service. Of course, I would not be in favor of depriving any of this service because they cannot pay, but most of those who come to these clinics can pay a small charge. My own experience in conducting dental clinics, giving toxin-antitoxin treatments against diphtheria and vaccination against smallpox (and I might explain that we charge from 10 to 25 cents for inoculations and 25 to 75 cents for dental treatment), has been that more people responded, we got better results and we did not pauperize anyone, and, too, there was not more than 5 per cent to whom we had to give free service.

C. V. Craster, M.D.—Some years ago, of course, there was a feeling that physicians were being discriminated against in connection with our preventive measures, but I think we all feel that until the physician is educated enough to advise preventive methods among the patients, it will be difficult for us to do anything else but offer, on behalf of the department of health, those procedures which are strictly preventive in nature.

I would differ with the last speaker, in that he stated that often free service was a pauperization of the public. As far as I can see, it is no more pauperizing than the classes and activities carried out by boards of education. They are giving all types of service, cooking classes, music classes and such, which some might just as readily say should be paid for by the individual family.

Now, our health department will only give in so far as the public demands them to give. If they are doing too much I think the public will soon see that their activities are circumscribed. As far as the health department goes, it should do those things which, as far as it can determine, are preventive measures. It does not matter what they are; if the activities are expensive, then it must call upon the public for more funds, but this cry of pauperizing the public is one that will not stand where we have to consider the activities and facilities and service which are rendered by other municipal departments.

The doctors are concerned with the treatment of the sick, and that is their prerogative and has been since ages ago. The new idea of preventive medicine is something we are asking the physician to carry out. Perhaps in 100 years' time the health departments can go out of business and say every physician is a health department himself but until that time, I think all of us must feel that this service shall be rendered by the municipal authorities so far as the taxes will allow them to do it.

John Thames, M.D.—I have not heard anything that answers the question: To what degree is a health department justified in extending free service without encroaching upon the field of cure?

I would contend, first, that the biggest mistake that any health officer ever made was to charge the people anything for any service which he gave, whether it was for vaccine or anything else. It is a mistaken idea and it causes the people to get the wrong impression.

Secondly, if the health officer stays within the bounds of public health practice, he cannot possibly encroach upon the field of cure, because whatever the health officer does or the department does is for the sole purpose of preventing the spread of contagion and to prevent disease; therefore, he has no business to give any cure, and he is not encroaching upon the field of cure. I, for one, want to testify that I have not for years found any trouble in selling the physicians public health, because I have built their practice very much better than they could build it themselves.

I think that once the physicians understand that public health work is a decided profession or branch of the medical profession especially, if you please, and as long as they practice their side of medicine and the health officer practices his, there is no encroachment whatever, no chance for it, no possibility of it. Whether we run clinics or vaccinate or inoculate against typhoid or diphtheria, we are helping them, because we educate the people up to the point the physicians want. I have never yet seen where they failed (if the physician reports) to do a great deal more immunizing work where there is a public health service going on than ever before.

I will say there is only one answer, and that is, the health officer is justified in going as far as he likes, just so that he stays within the bounds of public health practices.

Chairman Wilinsky—This is a very important subject. It either presumes to set a standard of such necessary services as a part of the health department practice, or presumes to suggest that such services are being carried on by some departments and may be classified as not within their province and sphere.

Member—Why should the work of the health board be classified as including the scope of preventive medicine? Now, I take it that the work of the health board is not essentially a question of practicing medicine. It is, primarily, a question of the function of government. Consequently, the general principles of government control rather than the general principles of the practice of medicine. And the function of the government in the United States, at least, is to protect each individual from encroaching on other individuals. So, based on that principle, the function of the board of health is to prevent one person from transmitting contagion to another person. That does not mean preventing one person from injuring his own health, which would be included in preventive medicine.

I take it that it is not the function of a governmental department to compel an individual to take care of himself. It is its function to prevent one person from being imposed upon by another.

Now, then, we have the situation complicated through the fact that we have reorganized our boards of health of recent years. Formerly, we had a board of health, and we had the city physician's office, and the board of health attended to the contagious diseases and the city physician in his office attended to the indigent cases.

One of the functions of government in preventing injury to the individual is to provide for the injured, and when it comes to that, we do not stop at preventive medicine; we do not stop at prevention of contagion, but we give curative treatments. When the indigent person comes along we give him everything he needs. On the one hand, we should not go into preventive medicine wherever the patient is able to go to his own physician, but we should go into preventive medicine and curative medicine for every person who is unable to pay and we should give it free, because it is a government service.

C. Hampson Jones, M.D.—Health departments should not enter into the field of curative medicine, provided that the curative medicine is given to a sufficient degree to meet the conditions by other agencies. Such, however, we find is not the case. The physical examination of children in the public schools brings out a large number of disease conditions that may not be corrected, except that the city shall provide clinics for that purpose. It either has to do that or else subsidize institutions already in existence to do that work.

In Baltimore we found, some years ago, that there were hundreds if not thousands of cases that demanded attention, but could not obtain that service. We have now instituted clinics and as far as I can see it will be necessary to institute more, if such are not provided by other agencies.

Member—Regarding the question of how far the health department should encroach, I should like to know the dividing line between the health department and the physician.

When we come to the problem of those who cannot afford to pay, the answer is, "Give it to them free." That raises a number of difficulties. You will find that once you start giving a treatment free, you will have a certain number who will come to you who are not justified in coming to a free clinic. How are you going to tell who is justified and who is not? My experience is that it costs 4 or 5 times as much to find out who is justified as it does to give all treatments free.

I do not feel that the health department should give antitoxin immunization. We are preventing disease by the use of toxin and antitoxin. A family is protected from disease by living in a house with a roof over their heads; and if you think of that we have no more right to give toxin and antitoxin than we have to go out and build a house.

Member—Perhaps some of the difficulty in the solution of this problem arises from a misconception or misunderstanding of the relationship between the health officer and the private, practicing physician. Most health officers, at least in the larger communities, are physicians, belonging to a medical society, and have the viewpoint of the physician. I believe that class consciousness should not exist; that the health officer is not a member of the county medical society in his public capacity, but that he is the servant of the public, and it is his obligation to give to the public those things that that public wants.

The administration of toxin and antitoxin, I believe, contrary to the previous speaker's

viewpoint, are functions of the health department. Let me give as an illustration the situation which develops in the community when an epidemic strikes it and the evidence indicates the necessity for the extension of service of this kind in the community.

Now, if such service is warranted in time of epidemic, it certainly must be warranted in time to prevent epidemic, if possible. The health departments do not go into curative medicine, as has been said over and over again, or should not go into curative medicine, except where curative medicine has a bearing upon the prevention of disease. But in order to prevent the spread of disease, it is necessary to undertake curative medicine. I believe it is the function of the health department to go as far as necessary to prevent that community from being overwhelmed with that epidemic, just as truly as the function of the police department or fire department to undertake whatever measures may be necessary to protect the health of that community. Again I wish to repeat that the health officer must, in my judgment, carry out his functions from the standpoint of the servant of the public as a whole rather than as the representative of the medical profession.

DAIRY PRODUCTS AND EGGS*

THE FIRST REPORT which this committee has rendered presents extensive information and comment on five major problems in its field, namely: (1) Progress Being Made in Standardization of Requirements for Producing Milk; (2) Necessity for National Standards for Pasteurization and Results of Recent Studies on Pasteurization; (3) Need for Universal Pasteurization of Milk; (4) Need for Pasteurization of Dairy Products Other Than Fluid Milk; (5) Extent to Which Milk Supplies Are Being Pasteurized.

PROGRESS IN STANDARDIZATION OF MILK PRODUCTION

The committee found that progressive, intensive effort to establish uniformity of requirements in producing milk on the farm has been carried out by the Dairy Division of the U. S. Bureau of Animal Industry and its successor, the Bureau of Dairying; the U. S. Public Health Service; the Central Atlantic States Association of Dairy, Food and Drug Officials; and the International Association of Dairy and Milk Inspectors.

Inadequate legislation in cities regarding the control of the purity and quality of milk sold, conflict between the dairy industry and health departments due to no definite standardization of requirements, farmers antagonistic because of the conflicting demands of several different inspectors from various organizations, and failure to prosecute court cases due to lack of uniformity in regulations, are some of the conditions now existing.

In its recommendation to improve these conditions the committee states: "What is needed is a central agency which will energetically take up the work of standardizing throughout the country the essential requirements for milk production, which should obviously be the same throughout the whole of the United States, north, east, south and west, and which will set minimum requirements for the production of the various grades of milk, all of the items of which would have to be fully complied with in order that the milk could be sold for consumption."

NATIONAL STANDARDS FOR PASTEURIZATION

The committee endorses the resolution contained in the *Report of the Committee on Pasteurization of Milk and Cream* of the International Association of Dairy

*Abstract of the Report of the Committee on Dairy Products and Eggs presented to the Food and Drugs Section of the American Public Health Association at the Fifty-fourth Annual Meeting at St. Louis, Mo., October 22, 1925.

and Milk Inspectors which contends that "properly supervised holding pasteurization is the only adequate safeguard for milk supplies."

In its effort to determine the practice of a universally enforced standard of pasteurization the committee states: "Each local health officer is a law unto himself. He observes the numerous thermal death points reported for the tubercle bacillus, and the many pasteurizing temperatures and times recommended by bacteriological literature, and from these he selects a temperature and time which becomes the law of his local city. As a result we have the untenable position of Akron requiring 140° F. for 20 minutes, while Chicago, Jersey City and Cincinnati require 145° F. for 30 minutes. On the other hand, St. Joseph, Mo., gives the milk dealer the option of a range of 150° to 140° for 20 minutes, while Baltimore thinks it better to have a range of 150° to 142° for 30 minutes and St. Louis provides a range of 146° to 142° for 30 minutes. New York City, Detroit and Philadelphia are agreed on 142° for 30 minutes. Peoria, Ill., allows an option of 140° for 20 minutes, or 155° for 5 minutes, while Oklahoma City allows three options, viz., 145° for 30 minutes, 150° for 20 minutes, and 155° for 5 minutes. Seattle is fixed at 145° for 20 minutes, while Portland, Ore., thinks 140° for 25 minutes is better, and allows 158° for 7 minutes if the dealer prefers.

"If the American Public Health Association is a clearing house for settling differences among health officers, here certainly are differences that are worthy of a settlement.

"The use of milk as a human food is in itself a public health measure. Damage to its food value or damage to its usability is against the interests of public health. One of the most insidious artifices devised in recent years by the enemies of pasteurization and the advocates of raw milk is to insist on a temperature for the legal standard which is so high that the marketability of pasteurized milk is damaged. They advise these high temperatures under the guise of great solicitude for public safety, while at the same time encouraging by every means the sale of raw milk."

The committee has carefully reviewed the studies and experiments made in the field of commercial pasteurization by recognized experts but goes on record that it "has drawn no conclusions from these studies and makes no recommendations as to time and temperature for commercial pasteurization, as it believes these matters are properly the function of the newly created Committee on Dairy Products of the whole Association."

NEED FOR UNIVERSAL PASTEURIZATION

"Because of the great and proven value of pasteurization in safeguarding the public health, this committee recommends that every member of the Food and Drugs Section shall actively work toward securing the certification or pasteurization of all public milk supplies and presents this resolution:

"WHEREAS, pasteurization of milk has proved of inestimable value in the prevention of disease and is the only adequate safeguard for milk supplies, and

"WHEREAS, pasteurization assists in the maintenance of abundant supplies of safe milk at prices lower than otherwise would be required, be it

"RESOLVED, that the Food and Drugs Section of the American Public Health Association go on record as favoring the pasteurization of all milk for human consumption except certified milk."

PASTEURIZATION OF OTHER DAIRY PRODUCTS

The recommendations pertaining to dairy products other than fluid milk made by the committee are:

That the attention of health officials be directed to the need of legislation requiring the pasteurization of such products as sweet cream, sour cream, skim milk, ice cream, butter and cheese;

That all sweet cream for consumption be required to be pasteurized;

That skimmed milk from which cottage cheese is made should be pasteurized by the holding process;

The universal pasteurization of skim milk;

Nation-wide legislation to require the pasteurization of the ice cream mix, the control to be exercised by the local authorities where the ice cream is manufactured;

PASTEURIZATION IN U. S. CITIES

Proportion of Milk Pasteurized in Groups of U. S. Cities 1924

Cities of Population:	Number of Cities in Group	%	Proportion of Cities in each Group in which the % Pasteurization on Jan. 1, 1924, was —			
			90 and over	50-89.9	10.1-49.9	10 and under
250,000 and over	13	75- 50- 25-	72.2	22.2	5.6	0
100,000 to 250,000	25	75- 50- 25-	19.2	65.4	15.4	0
50,000 to 100,000	46	75- 50- 25-	23.9	41.3	32.6	2.2
25,000 to 50,000	44	75- 50- 25-	11.4	38.6	38.6	11.4
Less than 25,000	71	75- 50- 25-	7.0	31.1	29.4	46.5
All Cities	205	75- 50- 25-	19.0	38.1	26.9	15.0

Hiscock and Jordan Report

That it is entirely feasible at this time to urge the passing of nation-wide legislation to provide for the pasteurizing of all milk for cheese making and to place the administration of the laws in the hands of the state officials in those states in which the cheese is made.

Quoting from this same section of the report: "Your committee believes that due to the economic advantages which accrue from the better keeping quality in cold storage when butter has been made from pasteurized cream, all except the smallest manufacturers are thoroughly in favor of pasteurization and would not have to be educated to its merits, and that the time is now ripe to require through appropriate legislation the pasteurization of all cream or milk from which butter is to be churned. It is believed that the pasteurizing process should be controlled by the state authorities in those states in which the butter is made. Any attempt to exercise control where the butter is finally sold would be neither feasible nor economical. And, moreover, it should be a matter of pride and of willingly assumed responsibility for the authorities at the source to see to it that only wholesome and safe butter is shipped from their states. It would be proper and desirable for the packages of butter to prominently bear the word 'Pasteurized' and this should be required in the legislation which is hereby urged."

EXTENT OF MILK PASTEURIZATION

"With the need for universal pasteurization so definite, it is of interest to know how far this country has gone and how much further it must go to attain the ideal of complete pasteurization of all milk supplies and of all dairy products. Professor Ira V. Hiscock, and Mr. Robert Jordan of Yale University have reported an excellent study of the milk situation under the title 'The Extent of Milk Pasteurization in the Cities of the United States.'[17]

"They discuss the question of close inspection at the dairy vs. pasteurization for insuring a safe supply and draw the conclusion that clean milk is not necessarily safe milk. As illustrating the feasibility of pasteurization in small communities they cite Tarboro, North Carolina, and Winona, Minnesota. Tarboro consumes about 400 quarts a day and the milk is pasteurized in a central plant owned and operated by the town. It supplies safe milk to satisfied customers at a reasonable cost.

"The study of the investigators of 205 cities and towns which were considered to be representative, showed that pasteurization of a portion of the milk supply is employed in 176 of them. Of the 29 communities in which no milk is pasteurized, 27 have a population of less than 25,000. For the group as a whole, in 39

cities including New York, New Haven, Washington, Baltimore, Richmond and Salt Lake City, 90 per cent or more of the supply is pasteurized; in 72 cities 50 to 89.9 per cent is pasteurized; in 55 cities 10.1 to 49.9 per cent is pasteurized; and in 39 cities 10 per cent or less of the supply is pasteurized."

The report is signed by the committee including: Harry W. Redfield, Ph.D., *Chairman;* George A. Merge, Ph.D.; Charles E. North, M.D.; William H. Price, M.D., and Martin J. Prucha. It carries a list of references constituting a valuable bibliography, which is given in full here.

BIBLIOGRAPHY

1. Frank, L. C. Thirteenth Annual Report of the International Association of Dairy and Milk Inspectors, 1924, p. 252.
2. Frank, L. C. *Pub. Health Rep.*, Nov. 7, 1924, p. 2765.
3. Redfield, H. W. et al. *Food & Drug Rev.*, United States Bureau of Chemistry, July, 1925, p. 35.
4. Price, W. H. et al. Thirteenth Annual Report of the International Association of Dairy and Milk Inspectors, 1924, p. 60.
5. Brown, F. W. Campbell. *Lancet*, Aug. 18, 1923.
6. Price, W. H. et al. Thirteenth Annual Report of the International Association of Dairy and Milk Inspectors, 1924, p. 67.
7. Heulings, S. M. *A. J. P. H.*, Aug. 1925, p. 723.
8. Committee on Resolutions. *A. J. P. H.*, Dec. 1924, p. 1069.
9. Frank, L. C. Thirteenth Annual Report of the International Association of Dairy and Milk Inspectors, 1924, p. 256.
10. Price, W. H. et al. Thirteenth Annual Report of the International Association of Dairy and Milk Inspectors, 1924, p. 65.
11. Vener, B. Eleventh Annual Report of the International Association of Dairy and Milk Inspectors, 1922, p. 173.
12. Schroeder, E. C. Twelfth Annual Report of the International Association of Dairy and Milk Inspectors, 1923, p. 321.
13. Schroeder, E. C. and Brett, G. W. Sixth Annual Report of the International Association of Dairy and Milk Inspectors, 1917, p. 190.
14. Rich, E. D. *A. J. P. H.*, Mar., 1923, p. 210.
15. Price, W. H. et al. Thirteenth Annual Report of the International Association of Dairy and Milk Inspectors, 1924, p. 85.
16. Price, W. V. *New York Produce Rev. & Am. Creamery*, July 8, 1925, p. 390.
17. Hiscock, I. V. and Jordan, R. Thirteenth Annual Report of the International Association of Dairy and Milk Inspectors, 1924, p. 89.
18. Hunziker, O. F. *New York Produce Rev. & Am. Creamery*, Mar. 11, 1925, p. 776.
19. Traum, J. and Hart, G. H. *J. Am. Vet. Med. Assn.*, Aug., 1916.
20. Traum, J. *State Veterinary College Report* (Cornell University), 1922–23.
21. Schorer, H. S. and Rosenau, M. J. *J. M. Res.*, Vol. XXVI, No. 1.
22. Whittaker, H. A., Archibald, R. W., Shere, L., and Clement, C. E. U. S. Department of Agriculture *Bull. 1344.*

American Association of Industrial Physicians and Surgeons—The annual meeting of the American Association of Industrial Physicians and Surgeons will be May 24–25 at Hotel Pennsylvania, Philadelphia, Pa. The program, including papers, discussions and hospital clinics, will be conducted primarily under auspices of the faculty of the Medical College, University of Pennsylvania.

Saskatchewan Health Officials' Association—The Saskatchewan Health Officials' Association was organized March 5 at a meeting of Canadian health officials held in Regina. The organization was created by the medical health officers of the cities of the Province of Saskatchewan and a group of 20 sanitary officers. The object of the association is to promote public health work and all salaried public health officials are eligible to membership. There are 200 to 300 part-time medical health officers who are also eligible and membership will be opened to other public health workers including school nurses, municipal engineers, laboratory workers and municipal veterinary inspectors.

The following patrons and officers were elected:

Patrons—The Hon. H. W. Newlands, Lieutenant Governor of Saskatchewan; The Hon. J. G. Gardiner, Premier of Saskatchewan; The Hon. J. M. Uhrich, Minister of Public Health. Hon. President—Dr. M. M. Seymour, Regina; President—Dr. Arthur Wilson, Saskatoon; Vice-President—Dr. M. R. Bow, Regina; Secretary—Mr. R. H. Murray, Regina; Executive—Dr. H. C. Burroughs, Swift Current; Mr. F. Cartlidge, Moosejaw; Dr. J. H. Jackson, North Battleford; Mr. P. McElmoyle, Regina; Mr. A. Wright, Prince Albert.

The first annual meeting of the Saskatchewan Health Officials' Association will be held at Saskatoon in July, when the Saskatchewan Medical Association meets.

EDUCATION AND CARE OF UNDER-NOURISHED PRE-TUBERCULOUS CHILDREN*

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THE PRESENT condition of improved health and longevity of the human race has been brought about through education. The great facts on sanitation, prevention and cure, which have been advanced for centuries throughout the world and proven in its scientific laboratories by those engaged in the medical profession, have in late years through public health activities been carried to the people for their protection. Through the medium of the press, the magazines, the lecture platform and the public health officer and nurse knowledge of inestimable value for the prevention of disease and the prolongation of life has been transmitted.

From observations during 17 years in municipal health service and school health administration, I am thoroughly convinced that while the education of the adult public has unquestionably borne fruit, it is through the channel of the impressionable age of childhood that we must look for greater achievement and results.

As we recognize the fact that systematic training of our mental faculties is almost absolutely necessary to fit us for life, so we must understand fully that intensive health education is equally necessary. The present limited information received by the average student through lack of time and space in the curricula of the educational systems should be greatly enlarged upon. No boy nor girl, no young man nor young woman should be turned out into the world to assume responsibilities without having received a health education, being graduated from the simplest lessons in cleanliness during the kindergarten age, to the sound knowledge of civic and state sanitary laws, housing, nutrition, and social hygiene acquired during high school or college life. This knowledge should be imparted to them through lectures by trained hygienists—hygienists with not only a theoretical but a practical education as well.

PRESCHOOL CLINICS INVALUABLE

There should be a more general use of school buildings for holding clinics. The preschool clinic conducted by the school physicians and nurses is invaluable both to the public and to the school system, and should be entirely a part of the school's responsibilities. At these clinics the mistakes of improper nutrition, defective heart conditions brought about by lack of rest and proper care following infectious and contagious diseases, the dangers from results of improper housing, environment and contact with tuberculous subjects, may be detected and referred to a physician or clinic. Too often these defects do not come under the observation of school officials for correction until a child has become a burden to the taxpayer by entering school unfit.

As education is the foundation on which must be built the prevention of tuberculosis, no city of 50,000 population or over should be without its all-year residential school or preventorium, supported wholly by the school district, or, if the financial conditions of the school district do not

* Read before the Public Health Administration Section of the American Public Health Association at the Fifty-fourth Annual Meeting at St. Louis, Mo., October 21, 1925.

permit, then the burden of expense should be shared by philanthropic agencies. One only has to observe the percentage of underweights in our public schools, as shown by the reports of teachers and nurses, to substantiate this assertion and to emphasize the fact until this coming generation, at least, has been educated to respect the value of fresh air, sunshine, and nutrition, it will be our duty to establish throughout the school systems higher class and more thorough health education among the teaching staff, increased provision for more supervised cafeterias and lunch rooms, more open air school rooms and summer camps (especially is the latter necessary in congested cities) and more residential all-year schools. All-year studies are in no way detrimental, but they are advantageous and advisable if we are to bring contentment through occupation, to give the child full value during its school life, and to prevent an economic loss to the taxpayer.

RESIDENTIAL SCHOOL AN ECONOMIC INSTITUTION

While housing conditions, homes lacking sunshine and fresh air have been responsible for many tuberclous cases, too many victims have been neglected by local authorities for fear of stamping the unfortunate ones as tuberculous. Quarantine rules and instructions in sanitation laid down by the visiting physician and nurse have been disregarded by patient and family. Added to this is the problem of large families in many of these homes, making it doubly difficult to supply proper nutrition, and consequently these little ones are forced into school totally unfit to take up the task of education. Finally, in adult life after a losing fight, they fill our sanatoria at a large expense to the taxpayer. It is for the removal of children from contact in these homes that the residential school is invaluable.

It is true, as emphasized by a number of physicians, that it is frequently impossible to detect the early symptoms of tuberculosis in the child. Here is a child otherwise apparently healthy, presenting a precarious appetite, with a record of decided underweight and fatigue and possibly a history of recovery from influenza, grippe, or some contagious disease, and unable to keep up mentally or physically with his playmates, but despite all these facts he is not regarded as pre-tuberculous. I am strongly of the belief that these children, while not presenting clinical evidences of tuberculosis (having first removed all physical defects), should be treated as such. Especially would I be on my guard to observe carefully over a period of months any rise of temperature.

I have in mind a picture familiar to you who are engaged in school hygiene work—a group of pupils entered in the open air room of one of our schools, who have an afternoon rise of temperature and pulse and whose decrease in weight ranges from 10 to 20 per cent. Clinical findings at present are negative, although they all give evidence of being fatigued in the afternoon following the recess period.

Many school systems have made provision for this type of child in their open air rooms, but very few have provided further means for more permanent results. In most instances such children, having the advantage of the open air rooms and nourishing food provided during the few school hours, are thrown back into homes of insanitary surroundings and lack of proper nutrition where, through ignorance and economic conditions, a great deal of that which was gained is lost during the larger percentage of remaining hours of the day and night. School systems in general have felt that their responsibility ceases when the child leaves the school building and grounds and that the provision for safeguarding the health of such children rests upon other agencies. I cannot agree with school authorities in this respect, citing as my reasons that vocational schools and

MODEL OF THE MOTHER GOOSE VILLAGE

schools for mental defectives are now a part of many school systems, but because of the character of his defect this particular type of subnormal for which these schools should be conducted requires day and night housing and all-year studies to accomplish the education to which he is entitled.

I am sure that if the taxpayer could be shown the advantage of having these pre-tuberculous children cared for in their early years in this comparatively economic manner, he would readily coöperate in establishing residential schools.

TYPES OF PREVENTORIA

The preventoria erected by the Rotarians of Canandaigua, New York, at a cost of $7000 and accommodating 30 children demonstrates my point in economical structure. In Ramsey County, Minnesota, there is also a similar institution ideally located and conducted in a very efficient and economic manner. The Day and Night Camp situated in the progressive city of which we are the guests to-day, providing for the care and education of undernourished children and for the day and night residence of young women of an undernourished pre-tuberculous type, is supported, I understand, jointly by the anti-tubercular society and the educational system. I am sure the advantages and gratifying reports obtained from the support of this camp remain unquestionable and show conclusively what can be done in an economical way commensurate with results.

In presenting the "Mother Goose Village" suggested for the school district of St. Joseph, Missouri, I have attempted to house those children who are undernourished, underweight and pre-tuberculous in cottages thereby eliminating all possible institutional atmosphere, so prevalent to-day in many of our institutions under the mantle of economy, but tending to unfit them for a return to simple home conditions. I feel that the economy, if there be any, in favor of the "institution" is far outweighed by the results achieved in the cottage plan.

It is on the great importance of early training that I base my claims for the superiority of the cottage plan of preventoria. This plan embodies all the good points of the usual institution, and offers in addition an opportunity to teach

habits of cleanly, sanitary living, sufficiently simple and economical to be carried out in their own home surroundings through its program of daily small tasks and its encouragement of pride in home-keeping, interest, occupation and contentment. Fresh air, good food, rest and contentment and the greatest of these is contentment! Unless the environment provided for the child is such that he will be willing to continue his residence in a happy contented state of mind sufficiently long to build up the proper resistance in many cases any permanent benefit derived is questionable.

I can find no better words with which to express my meaning in my contention for the superior advantages of the "Mother Goose Village" plan than the words of J. Clarence Funk, of the Pennsylvania State Department of Health: "Too much emphasis cannot be placed upon the psychological aspect of the problem, and one has but to see the faces of these little patients, remark their smiles, hear their laughter, and watch their play, to realize how much therapeutic value is involved in the particularly happy atmosphere in which they find themselves."

LIGHT AND HEALTH

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THE EXISTENCE of life on earth depends in the last analysis upon radiant energy from the sun, some of it perhaps stored in goodly part in food, coal, oil, etc. Much has been written recently regarding the subject of light rays and heliotherapy. At the Bath Meeting of the British Medical Association, papers were read by Leonard Hill, G. B. Dixon, Doris E. Colebrook, W. E. Dixon, C. E. M. Jones, and G. H. Lancashire. Likewise we have the articles of Webster and Hill, Helen Mackay and Harold Shaw, and we recall the pioneer Rollier of Leysin in the Alps. Sir Henry Gauvain with C. R. M'Crae has drawn attention to noteworthy results on the mentality of "sub-normal" patients which they attribute to artificial light treatment. To these investigators we naturally add the fundamental discoveries of Alfred F. Hess, Weinstock, Kramer, Howland, Park, McCollum and Steenbock and their associates in this country.

Light is defined briefly as a series of waves in the cosmic ether which travel at the tremendous rate of some 300,000 kilometers per second, those of certain (relatively short) lengths exciting the retina to appreciation. However, visible rays constitute an insignificant part of the whole. Beginning with the long waves at the "left" of the spectrum, measuring from hundreds of meters in length down to 60,000 millimicrons ($\mu\mu$), and including the Hertzian waves utilized in radio-telegraphy, we come to the infra-red or "dark heat rays" which merge into visible rays at lengths of about 760.

The infra-red waves (detected by a thermometric arrangement) have a warming effect upon the skin and to some extent upon the subcutaneous tissues. Such warming effect simulates that of heat as used in general therapeutics but is without specific chemical or "biological" effects.

We then pass through the visible spectrum—red, orange, yellow, green, blue, indigo and violet—with greater warming, and certain mildly therapeutic, effects extending even subcutaneously and acting undoubtedly in a reflex manner through sensory nerve endings in the skin.

However, just as the longer solar rays extend into the infra-red region, some of the shorter waves extend into the ultra-violet region—those from 380 down to about 300. These are detected by fluorescent screens, photographic films and the like. They succeed in penetrating the skin and—the longer ones—even to reaching the superficial capillaries, producing heat but not much germicidal action. Certain ultra-violet lamps, however, produce waves much shorter and more powerful than those found in the sunlight—waves measuring from 300 down to 100. These compose the far ultra-violet or distinctly bactericidal but only slightly penetrating waves.

Beyond these lie the X-rays and gamma rays of radium whose length decreases to infinity, whose penetrative and biological powers may be very great and whose therapeutic effects, as well as dangers, are still very inadequately understood. These will not be discussed further here.

The longer ultra-violet rays (380–300) appear most beneficial for general "flooding" light baths while the shorter ones (300–240, and below) have use for local effects. The Finsen rays lie in the visible-violet and longer ultra-violet regions.

Leonard Hill emphasizes the therapeutic value of the *middle* ultra-violet rays (320–240) as most effective, since these include both heating and chemical effects and the longer of them succeed in penetrating to the deeper cells of the skin. A limited group of waves (305–295), which indeed may be found "in high sun and clear sky," are always the most effective. These are stronger in "diffuse blue sky-shine" than in direct sunlight, so that heliotherapy can be carried out in the shade on bright days, also on dull days if prolonged. There is doubt whether solar light furnishes waves under 295 $\mu\mu$, at low altitudes, since such are absorbed by the earth's atmosphere.

Waves of the middle group are said to "knock electrons off of atoms" and alter the electrical charges in colloidal protoplasm which results in an aggregation of the particles present. There appear granulations in the protoplasm with an increase in acidity, *i.e.*, chemical changes which, after a latent period, lead to redness, edema and lymphocytosis in the exposed skin or tissues. Later, pigmentation (melanin) occurs—a protective feature against burning—which converts even visible rays into heat rays in the skin, leading to a reflex dilation of blood vessels with accompanying sweating, evaporation, and cooling phenomena.

The potent rays are also hemo-bactericidal and increase the immunizing power of the blood and tissue cells, probably by absorption of dead proteid products. Advantage of this may be taken by withdrawing blood from the body, irradiating it and returning it with increased immunizing powers.

Many things interfere with the beneficial effects of ultra-violet rays in sunlight such as the earth's atmosphere, smoke, window-glass, indoor existence, etc.; furthermore, clothing, thick parts of the skin and certain types of skin, as in sandy-haired, freckled individuals who do not pigment readily. Likewise it is said that those who are neurotic, suffering from acute diseases or with fever and the like, are not subjects for possible irradiation benefits, particularly the difficultly controlled effects of sunlight. Naturally greasy skins do best as they absorb ultra-violet rays and reflect red rays.

At this point, science comes to the rescue with its controlled dosage of ultra-violet rays as dispensed in the carbon arc, tungsten arc, mercury vapor quartz lamps and their modifications. Some forms of lamps require long exposure

and are accompanied by objectionable heat, while others require but a few moments exposure once or twice a week.

A large list of afflictions are included in the satisfactory therapeutic results reported: rickets, infantile tetany, surgical tuberculosis, rheumatism, various skin diseases (especially lupus and some eczemas), anemias, colds, bronchitis, sexual impotency, varicose veins, and mental backwardness or "lower levels of intelligence"—the latter, particularly in children. Indeed, Pearce and van Allen report protection of rabbits against inoculation of cancer by exposing them to the rays in question.

It is necessary to proceed carefully in ultra-violet ray therapy. Normal reactions do not follow until the day following exposure. The eyes (conjunctiva) must be protected although retinal effects are said to be due to visible rays only. Likewise the head must be protected in the case of sunlight which is also known to set up chilblains in too much exposure of the legs.

Hill believes that the usual brick hospitals in cities are out of date and unjustifiable, and should be replaced with bungalows with open-air wards, verandas, and unroofed open-air courts. The war experience showed that wounds and fevers did wonderfully well out-of-doors. People must be taught to get rid of smoke pollution, wear less clothes, expose more of the skin to light and, with the help of arc baths and more playing fields, health can be greatly improved. Artificial silk stockings (acetyl-cellulose) prove more transparent to the rays than protein products such as silk or wool fibers. Artificial silk zephyr-like material can be worn when modesty requires.

Irradiation of foodstuffs has been especially investigated by American workers. Various oils and cholesterol-containing foods may be seen to take on the antirachitic and health promoting powers seen in the use of cod liver oil. Subsequent cooking, boiling and aging do not seem to deteriorate them. Hill maintains that cattle may be given arc baths in winter no less than children in schools. Irradiated bits of skin of various animals fed to rats on rachitic regimen have been proved to recuperate them promptly, and in a manner similar to many irradiated foods (wheat, biscuits, flour, meat, milk, eggs, olive oil, lard, cotton seed oil, and linseed oil).

Hill makes a plea for the standardization of lamps and the riddance of quack instruments including those giving simply a violet colored light. (Necessarily, *ultra*-violet is invisible to the human eye.) He suggests that bathrooms be equipped with arc baths for 5-minute exposures of the nude body once or twice per week, where sunlight is undependable.

The arc rays should not be considered as a panacea. There is some danger, principally in the nature of burning, from their overuse, and there is apparently some justifiable reason why we tend to avoid too much sunshine.

PUBLIC HEALTH CLIMATOLOGY *

THE COMMITTEE has observed during the past year a marked growth of interest in the general subject of public health climatology. In August of this year, there occurred an important meeting in Davos, Switzerland, a Congress on Climatology organized by the Davos Institute for Alpine Physiology and Research in Tuberculosis. The printed program of the congress carried 62 formal papers, which were presented in four groups: General Climatology, Physical-Meteorological subjects, Biological Aspects of Climate and Clinical Climatology. The congress was so successful that it has been decided to organize future congresses, one to be held in a different country every third year. The congress was attended by distinguished scientists but unfortunately there were very few in attendance from the United States or from England and France. Davos offers three important centers of interest: first, the observatory of Dr. Dorno, famous for his application of meteorology to biology and medicine; second, the new Swiss Institute under Professor Loewy for the study of tuberculosis and of general physiology under high altitudes; and third, the special climatic conditions and the sanatoria of Davos, famous for the treatment of tuberculosis. The proceedings of the congress will contain numerous significant contributions to meteorology, physiology, hygiene and clinical medicine.

A second item of importance is the development in the United States of the regional organization of the American Meteorological Society.

The Pacific Coast group of this society held a meeting in June, 1925, at Reed College, Portland, Oregon, at which a number of papers were presented which should be of interest to our members. The paper by Mr. Erwin L. Weber on "Filtered Sunshine" contained a general treatment of the subject of weather in the Pacific Northwest. Mr. Weber likened the climate of this region to that of Northwest Europe in point of cloudiness and pointed out the filtering effect of cloudiness upon the character of sunshine available in this section of the country. He mentioned that a further discussion of the effect of sunlight upon health would be given in Dr. Charles E. Woodruff's forthcoming work on "Medical Ethnology." These observations of the probable effect of direct and filtered sunshine are subject to a check, of course, against the work of Rollier, Dorno, Hess, Leonard Hill and others who have found heliotherapy so healthful for residents of cloudy regions. The recent emergence of heliotherapy as an adjunct in the treatment of rickets justifies further inquiry by members of our Association into the factor of sunlight in the several regional climates of the United States.

The past year has been marked, also, by the appearance of the work by Drs. Leonard Hill and Argyll Campbell of the National Institute for Medical Research in Great Britain. Much attention is being centered in that country upon climatological problems. Prior reports on ventilation and open-air treatment had been issued by the National Medical Research Council. The most recent work embodies the main results of this research. The book deals with impurities and other unfavorable atmospheric conditions (smoke,

* Report of the Committee on Public Health Climatology presented to the Vital Statistics Section of the American Public Health Association, at the Fifty-fourth Annual Meeting at St. Louis, Missouri, October 20, 1925.

dirt, carbon dioxide increase and oxygen decrease, absence of or excessive moisture, excessive heat or cold), the approximation indoors of outdoor conditions, adaptation through suitable clothing to climatic conditions, the common "cold" and some of its climatic auxiliaries, light and its effect upon health, foods and the climatic factor, the skin and the control of body heat, and a general chapter on metabolism in relation to weather conditions. In our country, there is no organized and comprehensive research under way which compares with that being undertaken currently in Great Britain.

This committee recommended several years ago that the development of an Atmospheric Research Institute in this country would be able to make particularly valuable contributions to clinical medicine and to physiological meteorology. Your present committee expects a gradual growth of interest in the subject, however, and eventually there may result a well financed and effective organization for dealing with this important branch of science.

At the present time, responsible research is being carried on in the relation of the common cold to weather elements. Important differences are being observed between the seasonal swing of "colds" in the Eastern United States and on the Pacific Coast. The results of these inquiries, when finished, may be of interest in a general way to students of the respiratory diseases.

Another current inquiry promises to develop some facts on the relation between suicides and the rapidity of change in temperature, coincidentally with high and stationary atmospheric pressure. The seasonal element in the case fatality rates of the important communicable diseases is also under survey. Winslow's findings nearly 20 years ago for typhoid fever have suggested similar inquiries into the seasonal swing of case fatalities for other diseases—scarlet fever, measles, whooping cough, etc. A further research encouraged largely by your committee is an inquiry into the systematic periodicity of typhoid fever in times past. This research will be made available during the next year. Further coöperation will be extended by your committee to the Committee on the Atmosphere and Man, National Research Council, Dr. Ellsworth Huntington, chairman. It is hoped to complete additional studies of data on daily deaths in New York City in relation to atmospheric elements, and to analyze certain records on industrial production and indoor air conditions. These records were compiled for the National Research Council by a number of manufacturing establishments.

Your committee would again suggest that graduate schools of public health assign students to problems in public health climatology. Stimulating ideas of value in ventilation engineering and in the climatic treatment of certain diseases may result from such research. The field is practically untouched in America.

E. W. KOPF, *Chairman*
JOHN S. FULTON
KENNETH ALLEN

SOCIAL HYGIENE AND VENEREAL DISEASE CONTROL*

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SOCIAL HYGIENE represents the greatest advance of any field of preventive medicine in the past 10 years. Ten years ago physicians were loath to treat venereal disease. Its control was left, with a few exceptions to the quack who played upon the ignorance and fear of his patients. Now some of the most eminent men in the country are engaged in research work and in treatment of these diseases. Outside of a few leaders, we did not know of the real effect of these diseases upon the nation and frequently those who did know, having little evidence from statistics to support their statements, were not accorded the wholehearted support their project merited. When we realize that 10 years ago there were only 50 clinics for the treatment of venereal disease and that we now have 850 we get a striking demonstration of the progress that has been made.

Social hygiene, as its program has developed through many sources and been molded by countless influences, consists in the United States of four major enterprises. These are the promotion of recreation, that leisure time shall be used to advantage and that character development, including sex character, shall proceed under the most wholesome environment; of education, that a normal and wholesome attitude toward sex shall be inculcated together with other subjects, and that those who have passed beyond this influence shall be given information to safeguard themselves and others against common errors in attitude toward sex and against venereal disease; repression, that the concern of society for the protection of the innocent and the punishment of the commercializer of sex shall have effective expression; and, finally, treatment, that those who break through all these previous lines of special protection shall be harmed as little as possible and that the next generation shall be given every opportunity for normalcy in spite of disease in its ancestors.

There is no field of preventive medicine that takes into its scope so many and varied endeavors. In addition to the physician who treats the disease and the health officer who directs the operation of the quarantine procedures under it, we have a vast group of interested and intelligent aids to assist in the more thorough control of foci, and the prevention of contact.

Many of these agencies came to our assistance through the interest stimulated by our finding something of the truth of the infection rates. The nation was shocked and then sobered by the disclosures of the draft examination records. The health officer had at his service then a larger proportion of the intelligent interest and support of his community than he has ever had before or since.

In 1917, when I was commissioned in the Sanitary Corps and assigned to the Surgeon General of the United States Public Health Service for venereal disease control work, all the printed ma-

* Read before the Public Health Administration Section of the American Public Health Association at the Fifty-fourth Annual Meeting at St. Louis, Mo., October 21, 1925.

terial on the subject found on file in the Bureau was 2 printed pamphlets, both on the technical phases of treatment, and a general article by Williams on "Syphilis, a Disease of Diminishing Severity." The advance from that negligible beginning to the work of the Bureau of Venereal Disease with its splendid program, the creation and functioning of the Interdepartmental Social Hygiene Board and the operation of a bureau of venereal disease control in the department of health of every state in the Union is amazing. To my knowledge, no similar progress has been made in any field of medicine and public health.

To Dr. William F. Snow, of the American Social Hygiene Association, more than to any other one person, belongs credit for both the vision to see, early in the unpleasantness with Mexico and thereafter, and the courage to fight for adequate measures on the part of the Army and Navy in this program.

General Order 135, announcing that "continence is not incompatible with health" and inculcating into army orders the principle that moral conduct of a high order is both reasonable and possible, was the most significant document issued by the government since the declaration of war.

INFLUENTIAL AGENCIES

Social hygiene has become a valuable aid to the medical control program of the doctor, the epidemiological program of the law enforcement officer and the character developing program of the educator.

At present the subject of sex is being presented quite naturally and normally in many colleges, universities and medical schools. This is not being done as a separate undertaking, but the facts and ideals based upon them are being fitted into their normal place in life. Perhaps there may be in some quarters a little overemphasis. This is but natural, since some of the teachers must as yet be inadequately prepared to deal with the subject, because their own training has been incomplete. The coming generation will have a much saner attitude toward sex than the present one. The one in which we live has a much more balanced attitude toward it than has had any other in America.

Unless the health officer continues his leadership, the privilege of directing this movement will not be his. Starting as a program in treatment, developing into a program for preventive medicine, it is rapidly becoming a program for community and individual hygiene. Because of the moral considerations the educator, the minister, and that new but very valuable aide in public health, the intelligent and interested volunteer, have been accorded a very generous place at the movement's policy forming councils. Teachers, parents, leaders of clubs of various sorts—all have a program which touches this field at some point.

SCOPE OF SOCIAL HYGIENE PROGRAM

There is, of course, a question as to how far the health officer can go along the course the movement seems to be taking. More and more it is going into the field of protective measures, of psychology, of recreation, of working conditions, and of the thousand forces that motivate conduct. In such a program sex is but a part of the whole. Sex, while it lies close to the well springs of motivation, is after all but one of the forces that move us. When we have placed it with other forces and when we have caught a vision of the whole we will see social hygiene as it should be.

The volume of venereal disease is an accurate measure of the failure of the preventive program. When recreation, education and repression fail, then comes disease. If we are right in our belief that recreation plentifully provided and wisely supervised can really strengthen character and inspire to higher levels of moral conduct; if our conclusion, which appears to be amply supported by records,

that repression of prostitution can really lower the number of contacts and therefore the rate of infection; and if we can demonstrate that education, both that consisting of pure information and that in which this is motivated by emotions that strengthen the operation of the conclusions secured through it, then we can truthfully say that the bare mechanics of treatment of disease are of slight importance.

While there is every reason to believe that the disease rate has been materially reduced we have no means of knowing the relative effect of the several influences that have been at work toward this end.

HEALTH DEPARTMENT AND VOLUNTEER GROUPS

The impetus given to venereal disease control by state health departments has lessened very appreciably since funds are no longer available from the federal government. The position of leadership is being challenged by organizations with many interests. If our claim that the health department should guide this program be a true claim, the department must hasten to integrate into its present program the interest and support of many groups now too generally outside its consideration.

One of the greatest needs the health administrator has at the present time is a plan for intelligently interpreting to these willing, intelligent but comparatively untrained groups of citizens, the real truth about his program and his problem. We know more than twice as much as we use. We could use much more of what we know if we developed some really effective plan for interpreting it. Health information which, if used, could have lengthened the span of life many years, has lain in health department files accumulating only age and uselessness. Our job is to make it vital and interesting. In no field is this truer than in venereal disease control.

STANDARDIZATION OF THE WASSERMANN TEST*

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IN THE REPORT presented to this committee in 1924,[1] it was proposed that coöperative studies be undertaken of a number of subjects requiring investigation in connection with the standardization of the complement fixation test for syphilis. During 1925, work was started on the first problem suggested in that program, the study of representative antigens used in this country and abroad.

As a first step, it seemed necessary to determine whether or not any of the antigens in use approached the requirements of a standard. A few antigens were selected, therefore, of the types recently found to give particularly accurate results, and arrangements were made to test them, parallel with those routinely employed in the following 7 laboratories:

* Abstract of the progress report of the Referee and the Sub-referee on the Standardization of the Wassermann Test presented to the Standard Methods Committee of the Laboratory Section of the American Public Health Association at the Fifty-fourth Annual Meeting at St. Louis, Mo., October 19, 1925. The complete report appeared in the *American Journal of Syphilis*, January, 1926.

Division of Laboratories, Illinois State Department of Health, Springfield, Ill. Thomas G. Hull, Ph.D.

Wassermann Laboratory, Massachusetts State Department of Health, Boston, Mass. William A. Hinton, M.D.

Bureau of Laboratories, Michigan State Department of Health, Lansing, Mich. R. L. Kahn, D.Sc.

Mount Sinai Hospital, New York, N. Y. David J. Kaliski, M.D.

Serologic Laboratory, New York City Department of Health, New York, N. Y. M. A. Wilson.

Division of Laboratories and Research, New York State Department of Health, Albany, N. Y. Ruth Gilbert, M.D., and Virginia Langworthy.

Research Institute of Cutaneous Medicine, Philadelphia, Pa. John A. Kolmer, M.D.

The following antigens were chosen for trial: the Bordet[2] acetone-insoluble lipoids, the Kolmer[3] and the New York State cholesterinized antigens, and also, in the laboratory of the referee, the Noguchi[4] acetone-insoluble lipoids and the Müller[5] cholesterinized antigen. Professor Bordet, Dr. Kolmer and Dr. Noguchi very kindly supplied sufficient of their antigens for these tests.

This report contains the results of only 5 out of the 7 laboratories participating, as Dr. Hinton and Dr. Kaliski were unable to complete their tests in time for their results to be included.

The tests were done in the New York State Laboratory with 4 hours cold fixation; in the New York City Serologic Laboratory, with 1 hour fixation at 37°C.; in the Michigan State Laboratory, with 2 hours cold fixation; and in the Illinois Laboratory with overnight fixation.

RESULTS

New York State Laboratory—In cases diagnosed as syphilis, the New York State and the Müller cholesterinized antigens were by far the most sensitive, thus showing a definite advantage in primary and latent cases. The Kolmer antigen, although a cholesterinized preparation also, was the least sensitive. In a group of over 300 treated cases of syphilis, both the New York State and the Müller cholesterinized antigens gave over 70 per cent of marked reactions, while the Kolmer antigen gave less than 30 per cent of such reactions. The Noguchi and the Bordet antigens, and the New York State crude extract stood midway in sensitivity between these two extremes.

In presumably non-syphilitic cases, less than 5 per cent of reactions was obtained with any of the antigens. The greatest number occurred with the New York State and the Müller cholesterinized antigens (4 per cent and 2.8 per cent respectively), next with the Noguchi antigen and the New York State crude extract (1.7 per cent and 1.4 per cent), and the lowest number with the antigens of Bordet and Kolmer (1.1 per cent each).

Further study of the Kolmer and the New York State cholesterinized antigens was made in 61 syphilitic cases, with the method of overnight fixation which Kolmer considers essential for his antigen. The Kolmer antigen fixed overnight gave approximately half as many reactions as the New York State cholesterinized antigen by the same method. Moreover, the Kolmer antigen with overnight fixation, gave only about two-thirds as many marked reactions as either the Müller or the New York State cholesterinized antigen with 4 hours fixation.

New York City Serologic Laboratory—The results here, with 1 hour fixation at 37°C., showed the same relations between the Bordet, Kolmer and New York State antigens. The New York State cholesterinized antigen proved the most sensitive; Bordet's, although distinctly lower in sensitivity, was next, and Kolmer's gave the weakest fixation of the three.

Michigan State Laboratory—With 2 hours cold fixation, the results were in accord with the other two laboratories as to the relative sensitivity of the three antigens.

Illinois State Laboratory—Here, where overnight fixation was used, the results were at variance with those of the other three laboratories mentioned. The Kolmer and the New York State cholesterinized antigens were found equal, both giving stronger fixation than that of Bordet. The significance of this variation is uncertain, because the number of syphilitic cases in this series was small, less than one-tenth the number tested in either the Michigan or the New York State Laboratory. The discrepancy is not explained by the longer period of fixation, for in a larger series of cases studied in the New York State Laboratory, the Kolmer antigen proved definitely less sensitive than the New York State cholesterinized antigen.

Research Institute of Cutaneous Medicine—Dr. Kolmer's report, unfortunately, did not contain the data necessary to compare his results with those of the other laboratories. In tests of 48 sera, the Bordet and the New York State cholesterinized antigens were reported to give 96 per cent of true reactions, and the Kolmer antigen, 98 per cent of true reactions. With an additional 140 sera tested with the New York State and Kolmer antigens, the former was found to give 96 per cent, and the latter 98.5 per cent of true reactions. In explanation of these results, Dr. Kolmer states that by "true reactions," he refers to both positive and negative reactions agreeing with cases regarded clinically as syphilitic or non-syphilitic.

CONCLUSIONS

The results did not indicate the selection of any of the antigens studied, as a standard. The New York State and the Müller cholesterinized antigens, which gave the strongest fixation in syphilitic cases, gave also a small percentage of reactions in cases without clinical evidence of syphilis. The Bordet and Kolmer antigens gave fewer reactions in presumably non-syphilitic cases, but these antigens, particularly that of Kolmer, failed notably in syphilitic cases in the early and in the latent stages. It is clear, therefore, that a highly sensitive cholesterinized antigen is essential, but that a less sensitive antigen, which gives a minimum of reactions in cases without active signs of syphilis should also be used for the purpose of control.

PLANS FOR FUTURE WORK

In continuing this study, it is proposed to consider the activity of the antigen in relation to the temperature and period of fixation, and the quantitative adjustment of other constituents of the test. If coöperation can be secured from some of the well-organized clinics and blood specimens from the same cases can thus be supplied to the various laboratories taking part in such a study, it should be possible to obtain evidence not only as to the efficacy of the antigens, but also as to the accuracy of the "diagnosis" resulting from the methods of complement fixation employed.

The interest and coöperation manifested in this work during the past year, particularly by the large public health laboratories, is most encouraging.

REFERENCES

1. Gilbert, R., and Langworthy, V. Standardization of the Wassermann Test. *A. J. P. H.*, 15:201, 323 (Mar. and Apr.), 1925.

2. Bordet, J., and Ruelens, G. L'Antigéne syphilitique de l'Institut Pasteur de Bruxelles. *Compt. rend. Soc. de biol.*, 82:880, 1919.

3. Kolmer, J. A. A Superior Antigen for Complement-Fixation Tests in Syphilis (a cholesterinized and lecithinized alcoholic extract of heart muscle). *Am. J. Syphilis*, 6:74, 1922.

4. Noguchi, H. Test for Changes in the Protein Content of the Cerebro-spinal Fluid Based on the Flocculation of Lipoids. *Jour. A. M. A.*, 76:632, 1921.

5. Müller, R. Comparative Investigations of the Flocculation Tests of Dreyer, Meinicke and Sachs-Georgi. Investigations presented at the Second International Conference, Paris, 1922, p. 260.

THE PREVALENCE OF CARRIERS AMONG RECOVERED TYPHOID PATIENTS

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A REVIEW of the literature shows findings of from 0.5 per cent to 11.6 per cent of permanent carriers among recovered typhoid patients. The lowest finding is that of Conradi [1] in 1907 on the basis of 400 cases and the highest is that of Semple and Greig [2] in 1908 based on the examination of a group of 86 recovered typhoid patients in an army hospital in India. The examinations by Semple and Greig were made daily until the stools were repeatedly negative. Gay [3] states that the results of Semple and Greig represent more nearly the true state of affairs. Other surveys give figures ranging between these extremes. The most generally accepted estimate of permanent typhoid carriers is about 5 per cent of the total number of recovered cases. The following quotation from Chapin[4] expresses his opinion with regard to the generally accepted typhoid carrier percentage: "There is little doubt that the percentage of carriers, both convalescent and chronic, is considerably larger than is indicated by the above figures." The figures to which he refers are those of Ledingham (2.47 per cent), Park (2 per cent) and Bruckner (5.2 per cent).

TABLE I

DISTRIBUTION ACCORDING TO RACE, SEX AND AGE OF PERSONS EXAMINED AND THOSE FOUND POSITIVE FOR TYPHOID BACILLI

Age Group	EXAMINED White M.	White F.	Colored M.	Colored F.	Tot.	CARRIERS White M.	White F.	Colored M.	Colored F.	Tot.
0– 4	1	0	1	0	2	0	0	0	0	0
5– 9	5	3	5	6	21	1	1	0	1	3
10–14	14	4	6	8	32	2	1	0	0	3
15–19	7	6	8	16	37	1	0	0	2	3
20–29	6	5	7	14	32	0	1	1	0	2
30–39	7	5	3	3	18	0	1	0	0	1
40–49	3	4	2	0	9	1	0	1	0	2
50–59	3	0	0	2	5	1	0	0	1	2
Total	46	29	32	49	156	6	4	2	4	16

Typhoid in Alabama is primarily a problem of the small rural community and our material was obtained from residents of these small country towns. Our data are based on the findings obtained from the examination of 156 individuals who were reported to the State Board of Health as having typhoid fever from 6 months to 2 years previous to examination. The specimens obtained for

TABLE II

RESULTS OF POSITIVE TYPHOID CARRIER EXAMINATIONS

Age	Race	Sex	Date of Disease	Date of Pos. Exams.	Interval	No. of Exams.	Urine or Feces
9	W	M	Aug., '24	4–17–25	8 mos.	2	Urine
46	W	M	Aug., '24	4–17–25	8 mos.	2	Urine
16	W	M	Aug., '24	{4–17–25 / 6–17–25}	{8 mos. / 10 mos.}	2	Feces
38	W	F	Aug., '24	4–17–25	8 mos.	2	Feces
16	C	F	Aug., '24	5–11–25	9 mos.	1	Feces
6	C	F	Aug., '24	5–11–25	9 mos.	1	Feces
12	W	M	Oct., '24	5–18–25	7 mos.	1	Feces
24	W	F	July, '24	5–18–25	10 mos.	1	Urine
21	C	M	Feb., '23	6– 5–25	28 mos.	1	Urine
13	W	F	June, '24	6– 5–25	12 mos.	1	Feces
50	C	F	Aug., '23	7– 3–25	11 mos.	1	Feces
58	W	M	Oct., '24	6– 5–25	8 mos.	2	Feces
10	W	M	Aug., '25	6– 5–25	10 mos.	2	Feces
9	W	F	May, '24	{6– 5–25 / 7–24–25}	{13 mos. / 14 mos.}	2	Feces
42	C	M	1923	7–15–25	Over 12 mos.	1	Urine
16	C	F	1923	7–15–25	Over 12 mos.	1	Urine

examination were secured through solicitation from health officers and private physicians in various sections of the state. Practically all sections of the state are represented in the series.

The bacteriological technic used was that described in connection with a survey of the dairy population for healthy carriers by Welch, Dehler and Havens.[5]

It is seen from the two tables that 16 carriers were found in the examination of 156 persons, a percentage of 10.3. A further point brought out by this study is the fact that 9 of the carriers were under 20 years of age.

It is of interest to note that 6 of the 16 carriers excreted bacilli in the urine. This emphasizes the importance of urine cultures in a search for carriers, a procedure which was stressed in a description of the results of a previous study.[5] Of the 16 carriers, 6 (3.8 per cent) were urinary and 10 (6.4 per cent) fecal.

It is interesting to note that the carriers discovered were equally divided between the two sexes. This is not in accordance with reports of previous investigators. Most of the literature on carriers states that female carriers occur more frequently than male, about 4 to 1.

An additional observation of interest in the course of the survey was the isolation of paratyphoid A from the stools of 4 of the subjects in whom a diagnosis of typhoid was made the previous year. These 4 paratyphoid A cases are not included in this study.

In the light of past experience in connection with typhoid carriers in the United States, the results of our examinations would seem unusually high. In view of the much larger number of positive findings in this series it was considered advisable to obtain confirmation of the cultures isolated from the carriers. Through the courtesy of Major H. J. Nichols, a majority of the cultures were sent to the Army Medical School for confirmation. All cultures submitted were reported as typical typhoid bacilli, culturally and serologically.

SUMMARY

In the examination of 156 individuals who had recovered from typhoid fever within from 6 months to 2 years, 10.3 per cent were found to be typhoid carriers. These results show a percentage distinctly higher than reported by previous investigators in the United States.

REFERENCES

1. Conradi. *Deutsch. med. Wchnschr.*, 1907, XXXIII, 1684.

2. Semple and Greig. *Scient. Mem.*, Med. and Surg. Dept., Govt. of India, 1908, XXXII.

3. Gay, F. P. Typhoid Fever. Considered as a Problem of Scientific Medicine. New York, 1918, pp. 120–123.

4. Chapin, Charles V. Sources and Modes of Infection. New York, 1916, p. 42.

5. Welch, S. W.; Dehler, Sophie A.; Havens, Leon C. The Prevalence of Typhoid Carriers in a General Population. *Jour. A. M. A.*, 85, 14:1036–1039 (Oct. 3), 1925.

STANDARD SPECIFICATIONS AND TESTS FOR MUNICIPAL REFUSE INCINERATORS*

AT VARIOUS TIMES in the past few years your committee has called attention to the many failures in the disposal of municipal refuse and to the need for a more careful study of this problem by the engineering profession. Members of the committee who have had special opportunities for studying this question have been impressed with the chaotic condition prevailing in this branch of sanitary engineering and the need for furnishing some guidance to city officials and municipal engineers for the solution of their problems in the disposal of refuse.

It is generally agreed that in order to successfully dispose of municipal refuse, careful studies of local conditions should be made, first to determine which of the various methods of refuse disposal is best suited to local needs in any particular case, and second to secure the best results from the method of disposal determined upon.

In 1924 the committee determined to limit its work for the year to a consideration of one method of refuse disposal, namely incineration, and more especially to a consideration of the possibility of drawing up standard specifications for municipal refuse incinerators together with an outline of standard tests. The advisability of attempting to draw up such specifications and tests was accordingly considered and opinions were obtained from all of the members of the committee and from a number of other sanitary engineers. At the last convention a symposium on Model Incinerator Specifications and Contract Tests[1] was held, during which this matter was given very thorough and full discussion. The consensus of opinion seemed to be that, although it would be impracticable, if not impossible, to draw up detailed specifications that would meet various local conditions and different types of apparatus, general standard specifications and an outline of acceptance tests for incinerators could be drafted.

It is realized that while the problem presenting itself in various communities requires different solutions, certain basic principles could and should be observed in the design and operation of incineration plants. The problem in each case, however, is one requiring careful study by a competent engineer experienced in modern methods of refuse disposal, who should draw up the necessary specifications and contract forms and supervise and report on the acceptance tests. The following basic principles covering the design, construction and operation of municipal refuse incinerators have been drawn up for the general guidance of city officials and engineers who do not specialize in refuse disposal:

I. For reasons of sanitation it is believed advisable to keep garbage and refuse in separate containers at the house. The collection, however, may be either separate or combined depending on local conditions.

II. Household and industrial ashes should not be incinerated but should be hauled directly to the dump or fill.

III. The revenue derived from salvage and utilization of municipal refuse will probably never equal the total cost of collection and disposal. The possibility of the utilization, within the works, of power generated by incineration of refuse is worthy of consideration.

IV. In selecting a site for the location of the incinerator, due consideration should be

* Progress report of the Committee on Refuse Collection and Disposal presented to the Sanitary Engineering Section of the American Public Health Association at the Fifty-fourth Annual Meeting at St. Louis, Mo., October 22, 1925.

given to its accessibility for collection districts, the character of neighborhood as regards use and occupation, and its elevation with reference to the surrounding territory in order to minimize the possibility of nuisance.

V. Before specifications are drawn up certain fundamental data regarding the refuse should be obtained, such as total tonnage, relative proportion of the various constituents by weight and volume, calorific value, etc.

VI. Specifications for the work should always be drawn up and should include the following points:

1. The plant should be planned for at least two units, for flexibility and reliability of service and to facilitate making repairs.

2. Good engineering standards for materials of construction and quality of work should prevail.

3. The quality of fire brick used in the furnace should vary according to the demands in the different parts of the furnace, as to porosity, refractoriness, coefficient of expansion, hardness and ability to withstand abrasion.

4. The lining and arches of the furnaces should be so constructed as to prevent warping and cracking of the exterior walls.

5. The grates should be so designed as to make ample provision for expansion and contraction, to facilitate clinkering and to prevent overheating.

6. Suitable drying grates or hearths should be provided where garbage and other refuse having high moisture content are to be incinerated.

7. A combustion chamber of suitable size and arrangement to facilitate combustion and arrest dust should be provided.

8. If a boiler is installed to utilize the heat produced at the incinerator, due consideration should be given to the character and calorific value of the refuse in order that the boiler may be so located as to prevent undue cooling of the gases before combustion is complete.

9. Provision should be made for sufficient air, properly distributed, to give complete combustion. Forced draft with air preheated to not less than 300° F. is desirable, especially in the larger plants.

10. Simplicity and ruggedness in design should be sought in all mechanical devices.

11. Proper means of charging the furnace, with special provision for preventing undue loss of heat and the escape of gases of combustion during charging, should be provided.

12. Where the type of furnace or the local conditions require temporary storage of refuse, the storage bins or containers should be so constructed as to facilitate ready cleansing and a minimum handling of the refuse.

13. Provision should be made for rapid clinkering and for the disposal of clinkers and ashes.

14. Suitable instruments are desirable for measuring and recording essential data and results of operation of various parts of the plant. The minimum equipment for larger plants should be a continuous recording radiation pyrometer, a CO_2 recorder, thermometers or pyrometers for recording the temperatures of chimney gases, preheated air and outside air, and draft gauges for recording pressures in ashpits, flues and chimney.

15. Suitable scales should be provided for weighing the refuse delivered to the plant.

16. Ventilation of the plant should be provided in such a way as to prevent outside nuisance from odors or dust.

17. In general the plant should be so designed as to enable ready cleansing of floors and apparatus, and the necessary facilities should be provided for that purpose.

VII. In case the bidder has constructed plants of similar character to that proposed, he should submit with his bid a complete list of such plants. If the bidder has not constructed any similar plants he should so state.

VIII. Contract forms should be prepared and bids should be submitted in such a manner as to afford ready comparison of bids on unit prices of construction, and efficiency of operation, including annual charges of operation, interest and depreciation, under the stated guarantees.

IX. The contractor should make certain guarantees of efficient and economical operation under bond covering the following points, and the final acceptance of the plant should be contingent on the results of a test run of not less than 10 days' duration, conducted under certain specified conditions:

1. Personnel required to operate the plant for a given tonnage of refuse of a stated approximate percentage of constituent materials.

2. Net cost per ton for incinerating refuse containing certain percentages of water and combustible material. Where additional fuel is needed for complete combustion, the maxi-

mum quantity of fuel required per ton of refuse. (Usually 200 pounds of coal or the equivalent of oil or gas per ton of garbage is necessary for complete combustion.)

3. Number of pounds of refuse (of specified composition) to be incinerated per square foot of grate area, per hour.

4. Probable gross rate of evaporation in boilers from and at 212° F. per pound of refuse (of specified composition) consumed.

5. Minimum combustion chamber temperature 1,250° F. Average combustion chamber temperature 1,400° F.

6. No smoke to be emitted from the stack of a degree of darkness or density greater than that shown by Chart 1 of Ringelmann's smoke scale.

7. No dust or noxious odors to be emitted from stack or plant.

8. All refuse, except metals and incombustible materials, to be evaporated and burned to a mineral ash practically free from organic matter.

9. The city to be secured against litigation which may be brought for use of any device or patented article included in equipment.

X. The method of conducting the final tests and the personnel of the committee of judges should be specified. (It is desirable that the contractor carry out a preliminary test for at least a 5-day period.)

XI. The procedure to be followed in cases of failure of the plant to meet the requirements, should be specified. (Frequently the contractor is granted a 60-day period in which to make changes preliminary to a second and final test.)

XII. During the preliminary operation and test periods all operations should be carried on by and under the control of the contractor, who should supply the supervision and all labor and fuel necessary for the operation of the plant. The municipality should deliver at the plant the refuse to be incinerated.

C. A. HOLMQUIST, *Chairman*
JOHN H. GREGORY
M. N. BAKER
EDWARD D. RICH
SAMUEL A. GREELEY

REFERENCE

1. Incinerator Specifications and Contract Tests (A Symposium). *A. J. P. H.*, Jan., 1925, p. 48.

PUBLIC SPEAKING FOR PUBLIC HEALTH*

THE ART of public speaking is one of the necessary attributes of any sanitarian who wishes to deliver a message to the people, but eloquence is all too seldom possessed by health workers.

This thought introduced the clinic on public speaking of the Health Education and Publicity Section of the St. Louis meeting. Since its inception, this section has been noted for its unique and interesting program. This seldom includes set papers. The clinical method has been here successfully applied to the methods of health education. Clinical material for the public speaking clinic consisted of four brief typical talks, each intended for a special type of audience such as the health officer and other health workers have occasion frequently to address. Those who participated were: L. C. Bulkley of Shreveport, La., who gave a talk on health examinations as it might be presented to the local Rotary Club; Dr. Harriet Stevens Cory of St. Louis, Mo., who spoke on social hygiene and its place in health education as to a group of intelligent laymen; Dr. Ray S. Dixon of Detroit, Mich., who contributed a typical talk to a group of food handlers, explaining the reasons for medical examinations; and Miss Jessamine S. Whitney of New York, who outlined the need for accurate

*Abstract of the discussion at the Clinic on Public Speaking of the Health Education and Publicity Section held at the Fifty-fourth Annual Meeting of the American Public Health Association at St. Louis, Mo., October 20, 1925.

statistics as this subject might be presented to a group of tuberculosis workers.

Professor Isaac Lippincott of Washington University, a master of public speech, was in the audience unknown to the speakers, and proceeded to criticise their talks when all had finished. His criticism included both the form and the substance of the addresses.

"Get down to your audience," he advised, "forget everything but your audience while you are speaking. Talk directly to people. You don't need to be oratorical." He pointed out that several of the speakers did not watch the audience. He praised the friendly manner of one of the speakers and criticised another for having read a paper instead of delivering a speech. A subject read is never likely to be so good as one delivered extemporaneously, due in part to the difference in inflection in speaking.

"One very troublesome problem of public speakers," continued the expert, "is their hands. They do not know what to do with them; they seem as heavy as shovels. The hands should not, as a rule, be placed in the pockets, but they should be used for gesture and emphasis. This aids the directness of delivery.

"A talk should be well organized, but not so well organized that it reveals the art of organization. It should not, for instance, be obviously blocked off into sections. There must be spontaneity. Enthusiasm is also a good thing on the part of the orator. If the speaker is not interested, the audience will not be interested, and it is a pretty sure thing that if the speaker has shown decidedly that he is interested, the audience will be."

Further discussion of the talks with their criticisms was opened by Dr. Iago Galdston of New York, who pointed out various items in the technic of speaking. He turned the tables on the judge of the talks by using Professor Lippincott as an example of how to do it.

The great need of knowing and appreciating an audience was stressed, though one discusser suggested that if you are really interested you can make your audience interested, whether you understand them or not. The obvious need for clear diction and a sufficiently loud voice to penetrate to the rear seats was also brought out. One physician declared that in this respect "the average medical speaker is a 'cussed' nuisance."

Brevity was cited as a virtue and it was suggested that the audience should be judged to know nothing about the subject. Human interest and appropriate allusions were praised as advantageous. A summarization was likewise commended.

Dr. Lee K. Frankel, called upon by the chairman as one of the most skillful of modern public speakers, enlivened an already lively session by telling a character story, and describing an excellent speech made by a workman who had apparently never addressed a gathering before. "I am convinced of one thing first of all," said Dr. Frankel, "if you have something to say, get it across in a few words. Back of it all, there must be personality, and in the last analysis I think that is the secret of success in public speaking."

Dr. Ben Reitman of the Hobo College in Chicago then contributed the following, which had to be heard to be fully appreciated: "I go into a lodging house, stand up, look like a bum myself, and yell, 'There is smallpox in this dump. Come on upstairs and get vaccinated.' You don't have to say much, all you have to do is be dramatic."

As one of the St. Louis papers wrote, in reporting this particular incident, it was a great session.

MEETING OF THE COMMITTEE ON STANDARD METHODS

THE COMMITTEE on Standard Methods of the Laboratory Section of the American Public Health Association met at the Hotel Statler, St. Louis, Mo., Monday, October 19, 1925. Professor Edwin O. Jordan, William H. Park, M.D., George W. McCoy, M.D., Norman MacL. Harris, M.D., Roger G. Perkins, M.D., Leonard M. Wachter and John F. Norton, Ph.D., were present.

Dr. Harris raised the question of methods for the differentiation of fecal and non-fecal strains of organisms in the coli aerogenes group. It was voted to ask Dr. Max Levine to serve as referee for the committee on this subject.

The use of names of commercial products in "Standard Methods" was discussed. On motion of Dr. Perkins it was voted that it was the sense of the committee that the names of commercial products be given in the various standard procedures where there is good evidence that these are systematically standardized.

It was voted to recommend that Bacto nutrient agar (dehydrated) and Bacto eosin methylene blue agar (dehydrated) be admitted as standard media in water examinations. The question of the use of other dehydrated products was referred to the referee for report.

A progress report was received from Dr. Reddish, the referee on Standard Methods for Testing Disinfectants, which was read by the author before the Laboratory Section and will be published.*

A progress report was received from Dr. Ruth Gilbert, the referee on Standardization of the Wassermann Test. Since the technical detail of the report would be of interest to only a comparatively few members of the A.P.H.A., it was voted to recommend to the editors of the AMERICAN JOURNAL OF PUBLIC HEALTH that a summary of Dr. Gilbert's work be printed in that JOURNAL and that the complete report be sent to the *American Journal of Syphilis*.

Dr. Breed, the referee on Standard Methods for Milk Analysis, was invited to join the committee for the discussion on the revision of these methods. Dr. Breed reported that the 4th edition of *Standard Methods of Milk Analysis* has been translated into French and is now appearing in *La Lait*.

It was voted to make the following recommendations to the Laboratory Section in connection with a revision of the milk methods:

1. That the scope of *Standard Methods of Milk Analysis* be maintained as at present.
2. That the temperature for sterilization of glassware be "not less than 160° C." and the time "not less than 1 hour."
3. That cotton plugs shall not be used in sample bottles or dilution bottles.
4. That in the designation of the brand of meat extract that "Difco" be substituted for "Liebig."
5. That the standard peptone be described as "Difco or some other brand giving comparable results."
6. That the indicators used for titration of media be recommended to conform with those given in *Standard Methods of Water Analysis* (6th edition).
7. That Bacto nutrient agar (dehydrated) be included as a standard medium on a par with meat extract peptone agar.

The recommendations of the committee were presented to the Laboratory Section in preparation for request for final action at the next meeting of the section. Comments on these recommendations should be sent to the secretary of the committee.

J. F. NORTON, *Secretary*

A. J. P. H., March, 1926, p. 283.

EDITORIAL SECTION

Expressions of opinion and statements of supposed facts are published on authority of the writer under whose name they appear, and are not to be regarded as expressing the views of the American Public Health Association, unless such statements or opinions have been adopted by vote of the Association.

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MEMORIALS TO THE MASTER

THERE IS no reader of our JOURNAL who does not remember the profound sense of loss which went over the country on January 25, 1921, when the sudden death of Professor William Thompson Sedgwick was announced from Boston. To many it meant the breaking off of a friendship sanctified by years; to others it meant the loss of an adviser and teacher; to all it meant the loss of the one man who more than any other in this country had shown the value of biology in public health work. He was the first man outside of medical schools to begin the teaching of bacteriology to public health workers, and the first to show that sanitary engineering could be put on a new basis by the new science. He demonstrated fully that his text: "The sanitarian needs a proper working theory," was fulfilled by the science of bacteriology. From that early time, 1888, until his death, he was always in the field teaching and inspiring others to carry on the great work of public health. It is no disparagement to others to say that he did more than any other man in this country to put sanitation and public health work in general on a sound basis, and to demonstrate the truth of what Pasteur said: "It is within the power of man to banish contagious diseases from the earth."

At the Detroit meeting of our Association, Dr. Victor C. Vaughan called together a number of sanitarians and proposed the establishment of a memorial in honor of Professor Sedgwick. The idea was enthusiastically received and it was decided to establish a memorial medal which might be awarded from time to time for distinguished service in public health. A number of students and friends of Professor Sedgwick had already determined to found a lectureship in his honor. The two plans were not at all antagonistic, but since both required the raising of money, it was found advisable to work together instead of as two entirely separate bodies. The appeal for funds is now going on under the joint auspices of the committees charged with the two projects. Those interested can give entirely to one object or the other, and where no positive directions are given, gifts will be divided between the two.*

It is hard to say anything which has not already been told about Professor Sedgwick personally or his contributions to the science and art in which we are all so deeply interested. Those who knew him personally or who fell under his

* Subscriptions may be addressed to the Sedgwick Memorial Lectureship and Medal Fund, 370 Seventh Avenue, New York City.

influence will need no second invitation to subscribe to these worthy projects. It is hard to believe that there is anyone in public health work who has not read his book, *The Principles of Sanitary Science and Public Health*, or who has not in some way come under the influence of his teaching. His former students are scattered widely throughout this country, and are spreading as best they can to other students the inspiration received by them from the Master. To these also the opportunity should come as a privilege. In honoring the memory of Professor Sedgwick, we are also erecting a monument to the science in which we are so deeply interested. Let the response be prompt and liberal.

CANCER—ITS CAUSE AND PREVENTION

CANCER, always a topic which holds the attention of the public, has been more than usually discussed in the press, both lay and medical, during the past few months, largely on account of the interest excited by announcements made by Barnard and Gye, and the editorial attention given to them by leading medical journals. Needless to say, many who are speaking on the subject have no authority to do so either through training or attainments. Those best qualified to speak are proceeding cautiously and investigating before expressing opinions.

Alleged discoveries of the specific cause of cancer are not new. Since 1921, Dr. James Young of Edinburgh has been writing on what he considers the causative organism of cancer. Glover of Toronto since about the same time has been making similar claims. For several years Dr. M. J. Scott of Butte, Montana, has been writing on the subject, defending the position taken by Glover, though other investigators, perhaps better qualified, have failed to be convinced. In November, 1925, Loudon and McCormack published an article in Canada in which they claim to have confirmed the finding of the "pleomorphic microörganisms isolated by Glover and Young." Nuzum of Chicago, Stearn, Sturdivant and Stearn of Pasadena, and others have reported findings which certain persons are now trying to identify with the supposed microörganism of Barnard and Gye. In the case of some of these writers the claims go quite far. Scott claims to have produced malignant epithelial tumors in monkeys and to have cured a number of cases of cancer in human beings by means of a serum produced in horses by immunization against the Glover-Young microbe.

It is scarcely necessary to say that false hopes have been aroused, and those best qualified to judge have not accepted the claims made by any of these writers, with the possible exception of Barnard and Gye. In regard to their work, it has been repeatedly stated that even accepting it at its full value it is far from having solved the problem of cancer and, still more, far from having shown us how to prevent the disease or how to treat it. Indeed it is safe to say that the majority of pathologists are a long way from being convinced that cancer is a parasitic disease, and there are many good reasons for doubting its parasitic origin.

Those specialists who have spent years in the study of cancer and in experimental work upon it are the very ones who are most careful in their statements. Regarding the work of Barnard and Gye, which we may concede to be the most authoritative and scientifically sound which has been announced, scientific men feel that at best it will certainly be some time before it can be translated into methods of value in the prevention and treatment of cancer. Admitting that the

observations are new, valuable, interesting, and suggestive, few scientific men are convinced that the work so far done will apply to human cancer, nor can positive statements be made concerning the manner in which the supposed germ acts upon the tissues in producing the disease. "It goes without saying that Gye's conception, in so far as it is based on experimental work, has to stand the test of experimental confirmation. . . . It is the first adequate explanation of the causation and growth of cancer and it points the way to further progress."[1]

It is safe to say that dogmatic statements concerning cancer at the present time come only from the uninformed, the credulous, or those who have some ulterior motive in making them.

It is pleasant to be able to speak a little more optimistically concerning one of the newer methods of treatment—the Blair Bell lead method. Francis Carter Wood, director of the Institute of Cancer Research of Columbia University, has recently returned from Europe where he spent some time in carefully investigating all the available facts. The lead treatment promises to be an important contribution. The preparation used is extremely dangerous, can be made only by experts, keeps for only three days, and should be used only by those trained in its administration. The premature distribution of such a dangerous preparation among those not skilled in its administration would result in more harm than good.

We may summarize the situation by saying that while notable advances have been made in the treatment of cancer, and we hope also in the elucidation of its exciting cause, there are no facts at present which justify us in relaxing in any way the studies which are being made, the precautions which have been advised in regard to prevention, and the early treatment of lesions which experience has shown often end in cancer. The practical methods of value which have been proved by time and experience should not be abandoned for those supported only by theory.

1. W. Cramer. *Brit. Med. J.*, Jan. 30, 1926.

TYPHOID CARRIERS

THE CARRIER problem is one of the most puzzling with which the health officer has to deal. Carriers are the only permanent source of new infections, as far as we know, yet their control has not been solved either scientifically or legally. We have learned a great deal about the carrier state and by the examination of food handlers have succeeded to a considerable extent in checking outbreaks of typhoid fever, but cases are constantly coming up which show that this does not solve the problem, even if it were effectively carried out.

A recent case[1] is that of a fisherman who apparently infected 6 cases through association on board a fishing schooner, although he had nothing to do with the preparation or handling of food. The indications are that he had been a carrier since an attack of typhoid fever 13 years before. A similar case is that of Martin Olsen of the ship "Acme" sailing out of San Francisco. He was a winch-tender who, through using a water cask common to other sailors, was responsible for a number of cases of typhoid in several crews. The danger is, of course, tremendously aggravated when a carrier has anything to do with the preparation or handling of food. Beginning with "Typhoid Mary" a long list of such cases has been placed on record, and new ones are constantly cropping up. The work of

Havens, already mentioned in these columns, indicates that the carrier problem is more serious than we have suspected in the past, at least in certain parts of the country.

A recent case in England [2] is attracting the attention of health officers. Twenty-seven persons were infected by a woman milk-seller who was unconsciously a germ carrier, apparently in perfect health. In this instance all the health officer could do was to prevent her from selling milk or handling any kind of food for sale. The laws did not allow him to proceed further. While large powers are given to the Ministry of Health, and it would seem possible for it to promulgate orders for the confinement and treatment of healthy carriers, it is very doubtful if the courts would hold that the liberty of an outwardly healthy and morally blameless person could be taken away by departmental order. Parliament has the authority to pass such laws, but the best authorities in England do not know the extent of the carrier problem, nor do they know how to handle carriers when they are found, and while in many places provision is made for taking care of actually sick cases, there is practically no provision for those who are not outwardly sick.

The history of "Typhoid Mary" and the trouble she gave to health officers of New York is well known. In spite of the fact that the board of health had legal backing in this case, it eventually seemed necessary to release her, and she went back to her trade of cooking, spreading typhoid fever wherever she went.

Some carriers are apparently keenly alive to their condition and subject themselves willingly to every form of treatment without complaint. Martin Olsen submitted himself to treatment by vaccine and finally to extirpation of the gall-bladder, and a similar attitude may be expected of a number of these people, though it is more than doubtful if the law would sustain anyone in forcing such treatment in the present state of our knowledge. As far as the laws go, it seems that the suspected carrier has a perfect right to refuse to submit specimens for examination.

In a recent case,[3] a man who was evidently directly responsible for one outbreak, and indirectly for a second, but who was not at this time engaged in the handling of milk, refused to allow a thorough examination to be made, and held himself to be aggrieved over the fact that he was suspected of being a carrier. The same thing seems to be true in England as well as in some other countries.

Some of our states have passed rather stringent laws such as compulsory examination, quarantine and treatment, with fine, imprisonment and liability for damages as penalties, but only in the case of venereal diseases as far as we are aware. The problem is beset with difficulties which await solution.

The detection of carriers is not a difficult thing provided proper specimens can be obtained. In the case of food handlers, the possible carrier is easily gotten hold of and is comparatively easily handled because of the financial interest of the subject in obtaining a position. Unfortunately, however, most of our carriers are detected only through the outbreak which they have occasioned and after the damage has been done.

While legal minds may wrestle with the problem of control, it behooves the bacteriologists and physicians to study the methods of prevention and cure. More of this has been done in England than in this country. Among the lower animals no decisive proof has been given that previous inoculation with typhoid vaccine materially reduces the proportion of animals which become carriers after appropriate inoculation. Chemotherapy has naturally been tried, with inconclusive results. There is reason to believe that early administration of certain chemicals after intravenous inoculation will prevent the formation of foci in the gall-bladder, but nothing has been found that will cure them with any degree of certainty after

they have once been formed. It has been shown that these foci owe their origin to direct infection from the capillaries in the wall of the gall-bladder. Altogether the outlook does not appear to be bright for this method of treatment.

The results of surgical operation have been better.[4] It can be positively stated that in a large majority of the cases in which excision of the gall-bladder has been done cessation of the carrier state has resulted, though it is admitted that the subsequent examinations have not always been carried out in the best possible manner. It appears that when cure results the Widal reaction becomes negative where it was formerly positive, and this may serve as a further indication of cure.

The use of antityphoid vaccine has not been uniformly successful. Martin Olsen was "cured" more than once, but relapsed. It appears that it cannot be depended upon any more than diphtheria antitoxin can be depended upon to cure the carrier state in diphtheria. In the latter disease removal of the tonsils gives the best guarantee of curing the carrier, but all surgical procedures have their limitations. In diphtheria the removal of the tonsils will not cure a case in which the germ is growing in the nasal fossae. In the case of typhoid fever, removal of the gall-bladder can never have any effect on the urinary bladder carrier.

We are impressed with the view that the carrier is rarely an entirely well person. He is not clinically sick, and may not be conscious of any inconvenience, but there is almost certainly a focus somewhere in which an abnormal or diseased condition exists.

1. *Pub. Health Rep.*, Oct. 16, 1925.
2. *Lancet*, Nov. 28, 1925.
3. A Family of Typhoid Carriers. Anna Dean Dulaney. *A. J. P. H.*, Oct., 1925.
4. Harben Lectures, II. *J. State Med.*, Feb., 1926.

STRENGTHENING THE PUBLIC HEALTH SERVICE

IT WILL be recalled that the American Public Health Association at its St. Louis meeting adopted a strongly worded resolution in favor of the coördination and strengthening of federal health activities, and authorized the appointment of a committee to work for this end. After careful study of the situation, in conference with Surgeon General Cumming and the other agencies interested in the promotion of federal health work, a bill was finally prepared and introduced by Mr. James S. Parker of New York under the title H.R. 10125.

The committee very wisely, as we believe, abandoned the quite futile hope of securing a secretary of health with a seat in the Cabinet and instead has prepared a measure which will accomplish the largest result which can reasonably and practically be hoped for at this time. It has drawn a bill which makes it possible for the President to transfer to the Public Health Service other administrative divisions carrying on public health activities, and which permits the detail of officers in the employ of the Public Health Service to other executive agencies which continue to perform work of a public health nature. Furthermore, the bill as will be noted,* greatly strengthens the organization of the Service itself, permitting the commissioning of non-medical personnel, establishing a nursing corps in the Service and making possible an enlargement of personnel and scope of the advisory board of the Hygienic Laboratory.

One must go back in history to understand why our Public Health Service is in the Treasury Department. Irrational as this arrangement appears at first sight,

* Printed in full on page 411. See also pages 408 and 448.

it must be said that successive secretaries, regardless of their political complexion, have dealt wisely and liberally with the Public Health Service. There have, however, always been certain limitations, some of which will be removed by the new law, but others which are inherent in our form of government. An especially noteworthy feature of the bill is the establishment of the Nurse Corps and the placing of sanitary engineers, dentists and scientific men on the basis of commissioned officers, insuring tenure of office and retirement pay. Those now serving in some of these capacities are "neither fish, flesh, fowl, nor good red herring."

We suspect that the passage of the bill will raise a number of questions as to just what constitutes a public health activity. The Children's Bureau for example is now in the Department of Labor, where it has done excellent work, though many have felt that it should have been under the Public Health Service.

The bill is a step in the right direction and may be regarded as a part of the general movement towards reorganization of the multifarious efforts of the government. We believe it will make possible an enormous strengthening of the health activities of the federal government at no additional cost and indeed with resulting economies. There is reasonable hope that it may be enacted during the present session of Congress and we would strongly urge all members of the A.P.H.A. to lend their aid to this desirable objective by writing to the Honorable James S. Parker, Chairman of the Committee on Interstate and Foreign Commerce of the House of Representatives, to the Honorable W. M. Butler, United States Senate, and also to their own representatives and senators urging the passage of House Bill 10125.

POISONING BY ARSENICAL SPRAYS

CONSIDERING the wide use of arsenic and lead in sprays for vegetables and fruits, it is remarkable that so few cases of poisoning have been reported. The users of these poisons state that there is no danger because the material is washed off by the rains. A nationally known horticulturist once told the writer that he had purposely sprayed cabbage with arsenate of lead and used it within a few days without ill effect, holding that the washing before cooking and the cooking itself completely did away with the poison. The writer has always been more or less skeptical concerning the accuracy of this reasoning, so that the cases of poisoning by American apples reported from England a few months ago was not an entire surprise. At least two cases of arsenical poisoning were traced to the eating of Jonathan apples imported from America, and chemical examination of the apples showed varying amounts of arsenic ranging up to one-tenth of a grain per pound. These cases went to court and in spite of the history of the apples as having come from America, and proof of the innocence of the dealers in selling them, they were convicted and fined $13.00 each plus $5.00 cost. The defense claimed that where these apples were grown the season had been unusually dry so that the arsenic was not washed off by the rains, but in spite of this the fine was imposed.

The matter has attracted considerable attention in England and has been commented upon by practically every health journal, and some of the medical journals, in that country. The Minister of Health published a circular in December, 1925, calling the attention of local authorities to the danger which existed. Steps have been taken to remove the arsenic on apples for exportation so that in the future similar accidents may not occur. However, the incident calls attention to a danger which must be recognized and some supervision of the sale of apples which have been repeatedly sprayed with arsenical solutions is indicated.

ASSOCIATION NEWS

WILL YOU BE AT ATLANTIC CITY?

THE first American Health Congress at Atlantic City, May 17–22, will be unique in the history of preventive medicine and public health. The week's program consisting of nearly a hundred sessions makes a varied appeal to all interested in public health work. Seventeen national health organizations are participating.

Internationally prominent figures who will address the general sessions are: George E. Vincent, M.D., President of the Rockefeller Foundation; Sir Arthur Newsholme of England; René Sand, M.D., League of Red Cross Societies; Alice Hamilton, M.D., Representative of the United States on the Health Section of the League of Nations; and C.-E. A. Winslow, Dr.P.H., Professor of Public Health at Yale University and President of the American Public Health Association. Professor Winslow will present the subject from the health worker's point of view and the subject will also be presented from the angle of the physician and the layman.

Joint sessions, individual organization sessions, round table discussions, clinics and exhibits offer every attendant at the congress a variety of entertainment and useful instruction. The congress is bringing together approximately 6,000 physicians, nurses, psychiatrists, educators and sanitarians of all types.

The organizations participating at Atlantic City are: National Health Council, American Nurses Association, National Organization for Public Health Nursing, National League for Nursing Education, American Child Health Association, Conference of State and Provincial Health Authorities of North America, American Public Health Association, National Tuberculosis Association, American Social Hygiene Association, National Committee for Mental Hygiene, National Committee for the Prevention of Blindness, American Heart Association, Women's Foundation for Health, American Society for the Control of Cancer, U. S. Public Health Service, United States Children's Bureau and the American Red Cross.

The congress will be the occasion for the regular biennial session of the three national nursing organizations and the regular annual meeting of the American Child Health Association and the Conference of State and Provincial Health Authorities of North America. A special meeting of the American Public Health Association has been called for Atlantic City and this organization together with 7 others will hold special scientific programs. Four general sessions of the congress will be held as follows:

First Session—Monday, May 17, at 8 P.M.

Opening Session—Chairman, Livingston Farrand, M.D., President Cornell University.

Address—Lee K. Frankel, Ph.D., *Chairman* National Health Council.

Values in Public Health Work—Sir Arthur Newsholme, Former General Medical Officer of Local Government Board, London, Eng.

Second Session—Tuesday, May 18, at 3 P.M.

Whose Business Is the Public Health?—*Chairman*, Linsly R. Williams, M.D., Secretary, New York Academy of Medicine and Managing Director National Tuberculosis Association.

From the standpoint of the practicing physician—Clarence D. Selby, M.D., President of Ohio State Medical Society

From the standpoint of the sanitarian—C.-E. A. Winslow, Dr.P.H., President American Public Health Association

Third Session—Thursday, May 20, at 8 P.M.

Public Health and the Future of the Race—*Chairman*, S. J. Crumbine, M.D., General Executive, American Child Health Association

Ray Lyman Wilbur, M.D., President Leland Stanford University

Fourth Session—Friday, May 21, at 8 P.M.

International Health Work—*Chairman*, W. H. Snow, M.D., Executive Director American Social Hygiene Association

George E. Vincent, Ph.D., President Rockefeller Foundation

Alice Hamilton, M.D., United States Representative to the Health Section of the League of Nations

René Sand, M.D., Secretary of the Health Section of the League of Red Cross Societies

AMERICAN PUBLIC HEALTH ASSOCIATION

A session of particular interest to every public health worker will be the "Clinic on Health Education and Publicity," to be conducted by E. G. Routzahn, Secretary of the Health Education and Publicity Section. The subject will be "Popularizing Health Education."* Types of material such as bulletins, posters, press releases, dodgers, broadcasts and the layout of pamphlets, as well as the daily problems of publicity will be discussed.

A joint session of the Public Health Administration Section and the American Social Hygiene Association will discuss "Venereal Disease Control." The subject will be presented by representatives of the United States Public Health Service and the health departments of St. Louis, Detroit and in the state of Pennsylvania.

The interest of health workers has been quickened by the recent discoveries of the effect of sunlight in its relation to health rehabilitation. Apropos of the recent research and experiments in this field, the Child Hygiene Section, under the leadership of W. J. Bell, M.D., of Toronto, chairman of the section, will conduct a session on "Light and Health." The subject will be discussed from the point of view of the practical application of light in the field of nutrition, by the laboratory worker, by a pediatrist touching upon the medical and nutrition angle, and by a surgeon who has had extensive experience using light in children's surgery.

Under the auspices of the Committee on Training and Personnel, a session will be held which is of particular interest to those teaching hygiene to high school and college students.

A session on "Milk in Its Relation to Public Health" will afford opportunity for the discussion of the many problems involved in a safe milk supply. Louis I. Harris, M.D., Commissioner of Health of New York City, C. W. Larsen, Chief of the Bureau of Dairying, United States Department of Agriculture, and Dr. Herman N. Bundesen, M.D., Commissioner of Health, Chicago, Ill., will contribute to this program.

* Plans, problems and materials to be discussed at this clinic should be submitted by May 1 to Raymond S. Patterson, State Department of Health, Trenton, N. J.

Nurses particularly and many others incidentally will be interested in the joint session of the Public Health Nursing Section and the National Organization for Public Health Nursing on the graphic presentation of facts. A class or demonstration in "How To Do It" has been arranged. May Ayers Burgess, Ph.D., of the Committee on Dispensary Development of New York City, will present the subject and show the nurses how to make convincing charts. Louise Tattershall, statistician of the N.O. P.H.N., will explain how to find the figures to use on these charts. Mary Dempsey, statistician for the Syracuse, New York, Health Demonstration, will talk on "How It Actually Has Been Done." Sophie C. Nelson, chairman of the nursing section of the A.P.H.A., will preside.

The Friday program promises to be one of the outstanding features of the week. It will be a joint session of the American Public Health Association, the American Child Health Association, the Conference of State and Provincial Health Authorities and the National Organization for Public Health Nursing. The subject for discussion by these groups is "Health Organization for Cities." Practically every phase of community health service will be discussed by recognized experts. There will be a presentation of three plans for health organization—for cities of 100,000, 50,000 and 20,000 population. Details of the programs for such organization will include infant welfare, tuberculosis, public health nursing, school health, sanitation, health education, and venereal disease control. Hugh S. Cumming, M.D., Surgeon General of the U. S. Public Health Service, will act as honorary chairman, and he will be assisted by Henry F. Vaughan, D.P.H., Commissioner of Health, Detroit, Mich., and ex-President of the A.P.H.A. Dr. Vaughan will also talk on the similarity of plans for the three types of cities, the personnel required and the cost. John L. Rice, M.D., health officer of New Haven, Conn., will be chairman of the program for the city of 100,000 population and Harriet Leck, director of the Visiting Nurses Association, Hartford, Conn., will talk on "Public Health Nursing Service." Sophia C. Nelson, director of Visiting Nursing Service, John Hancock Life Insurance Company, Boston, Mass., will discuss "Public Health Nursing and Community Service in the City of 20,000 Population." S. J. Crumbine, M.D., general executive of the American Child Health Asso-

ciation and field secretary of the Conference of State and Provincial Health Authorities of North America, will close the discussion with a paper on "The Great Obstacle in the Way of Public Health Administration—Indefinite Tenure." Other prominent health officers will speak at this session which will extend through the morning and afternoon.

AMERICAN NURSES ASSOCIATION

Private nursing duty will be especially featured in the program of the American Nurses Association which has planned 13 sessions for the week. Other subjects to be featured by this organization are: mental hygiene, publicity and legislative activities as they are related to the nursing profession. Janet Geister will be one of the principal speakers and her subject will be "Hearsay and Facts in Private Duty Nursing."

NATIONAL ORGANIZATION FOR PUBLIC HEALTH NURSING

The N.O.P.H.N. program of 20 sessions will include discussions of tuberculosis nursing, visiting nurses' conferences, rural nurses' conferences, city nursing supervision, child hygiene, school nursing, public health nursing and community health organization.

At its opening session there will be a discussion on "The Policies and Future of the N.O.P.H.N.," led by Mary S. Gardner. "How Much Shall the Visiting Nurse Nurse?" is the subject for the Visiting Nursing Section to be discussed by Dr. Max Exner. At the conference on rural nursing the question will be, "How Can Public Health Nursing and Local Work Dovetail to Meet the Needs and Conditions of Rural Life?"

At the joint session of the American Nurses Association, the National League for Nursing Education and the N.O.P.H.N., Alexander Mikeljohn, Ph.D., of the University of Wisconsin, has been asked to speak on "Newer Developments in Adult Education." Mary E. Gladwin, educational director of Minnesota, will talk on "What This Movement Might Offer to the Nurse."

Another session will be devoted to "Trends in Public Health Nursing Education," at which Katharine Tucker, chairman of the educational committee of the N.O.P.H.N., will preside. The "Undergraduate Phase" will be discussed by Harriet Frost, supervisor of the Department of Public Health Nursing, Pennsylvania School of Social and Health Work; "Staff Educational Programs," by Emilie G. Robson, director, Visiting Nurses Association, St. Louis, Mo.; "Post-graduate Courses," by Lillian A. Hudson of the department of nursing education, Teachers College, Columbia University.

"Where 12,000 Public Health Nurses Work" is the subject of another session, and the speakers will be: Mary Augusta Clark, research statistician for the Joint Committee on Methods for Preventing Delinquency; Elizabeth G. Fox, R.N., president N.O.P.H.N.; Mary Beard, special assistant to the director of the Division of Studies, Rockefeller Foundation; Ada Taylor Graham, director, Bureau of Child Hygiene and Public Health Nursing, South Carolina. W. Frank Walker, D.P.H., field director for Committee on Administrative Practice, A.P.H.A., will preside.

AMERICAN CHILD HEALTH ASSOCIATION

The American Child Health Association opens its annual meeting Tuesday evening when Herbert Hoover, president of the Association, will make the opening address followed by Mrs. A. H. Reeve, president of the Parent-Teachers Association.

A joint session with the American Public Health Association will be held to discuss "Newer Methods for the Control of Infectious Diseases." The speakers will be Roland G. Freeman, Jr., M.D., "Measles"; John A. Kolmer, M.D., of Philadelphia, "Scarlet Fever"; William H. Park, M.D., New York City, "Diphtheria." Frank W. Sears, M.D., of Syracuse, N. Y., will describe how 5 years of effort have eliminated diphtheria mortality from a section of Central New York. Matthias Nicoll, M.D., health commissioner of New York state, will discuss the necessity of an extensive national campaign for popularizing diphtheria immunization.

A session on Public Health Nursing will be held in conjunction with the Child Hygiene Section of the N.O.P.H.N. and the speakers will be: Arnold Gesell, M.D., of New Haven, Conn.; Winifred Rand of Detroit, Mich.; Lester J. Evans, M.D., of the Fargo, N. D., Child Health Demonstration; Florence H. M. Emory, R.N., of Toronto, Canada; Isabel P. Haggerty, Passaic, N. J.; and Elnora Thomson, R.N., Salem, Ore.

"When Do Deviations from Normal Become Physical Defects?" will be the topic of discussion at one session participated in by E. A. Strecker, M.D., of Philadelphia and Hugh Chaplin, M.D., of New York City.

At the session on Neonatal and Maternal Welfare, Fred L. Adair, M.D., of Minneapolis, Minn., will take as his subject, "The Status of Neonatal Mortality."

"Health Education and Health Improvement" is the topic for discussion at the 2 joint sessions with the Child Hygiene Section of the A.P.H.A. on Thursday. Speakers scheduled are: Juliet Bell, director, County Health Education Demonstration, Kalamazoo, Mich.; Edna Bailey, Ph.D., Oakland, Calif.; Daniel J. Kelley, superintendent of schools, Binghamton, N. Y.; Professor C.-E. A. Winslow, and Emeline S. Whitcomb, specialist in home economics, Bureau of Education, Washington, D. C.

NATIONAL COMMITTEE FOR MENTAL HYGIENE

The mental hygiene program will consist of 16 round table discussions on the problem child, the backward child, problems of adolescence, and community and organization problems. The leaders of the discussions will be Douglas A. Thom, M.D., director of Habit Clinics, Boston, Mass.; Frankwood E. Williams, M.D., Medical Director of the National Committee for Mental Hygiene; George K. Pratt, M.D., assistant to the medical director of the National Committee for Mental Hygiene; Charles Bernstein, M.D., Superintendent of the Rome State School, Rome, N. Y.; Frederick H. Allen, M.D., director, All-Philadelphia Child Guidance Clinic; Marian E. Kenworthy, M.D., director, Bureau of Children's Guidance, New York City; George L. Wallace, M.D. superintendent, Wrentham State School, Wrentham, Mass.; Ralph P. Truitt, M.D., director, Division on Prevention of Delinquency, National Committee for Mental Hygiene; Arthur H. Ruggles, M.D., professor of psychiatry, Yale University; Christine M. Leonard, M.D., chief-of-staff, All-Philadelphia Child Guidance Clinic; Lawson G. Lowrey, M.D., director, Cleveland Child Guidance Clinic; Sanger Brown, 2d, M.D., chairman, New York State Commission for Mental Defectives; Stanley P. Davies, Ph.D., executive secretary, Mental Hygiene Committee of New York State Charities Aid Association; and Jessie Taft, Ph.D., director, Child Study Department, Pennsylvania Children's Aid Society.

OTHER PROGRAMS

Among the other organizations planning programs there may be announced the joint session of the American Social Hygiene Association and the National Committee for the Prevention of Blindness on "Venereal Disease and Blindness." "Health Positive" will be the subject of a symposium to be held by the Women's Foundation for Health. Martha Tracy, M.D., dean of the Woman's Medical College of Pennsylvania at Philadelphia and president of the Foundation, will be one of the prominent speakers.

PLACE OF MEETINGS, EXHIBITS

The larger meetings will be held on the Steel Pier while the smaller meetings will take place in nearby boardwalk hotels. Many of the organizations participating in the congress have arranged exhibits on the Steel Pier where there will also be extensive and interesting commercial exhibits.

INTERESTING PLACES TO VISIT

Atlantic City, especially in the month of May, offers many attractions, and the directors of the American Health Congress hope that the very selection of this seaside resort with its world-famous ocean front, beautiful drives, golf links and comfortable hotels will tempt professional public health workers to combine pleasure and business by taking advantage of the week set aside for them in May. Atlantic City has 3 golf clubs and several tennis clubs affording plenty of recreational opportunity for those who want to sandwich in a little playtime. Some may prefer to seek out the Anglers' Club of Abescon Island while others get acquainted with the sportsmen of the public yachting fleet.

Members of the congress will want to visit places of public health interest including the Betty Bachrach Home for Crippled Children and the Children's Seashore Home.

HOTEL ACCOMMODATIONS

St. Charles Hotel will be headquarters for the A.P.H.A., the American Child Health Association, and the Conference of State and Provincial Health Authorities of North America. Other organizations have reserved other hotels near the Steel Pier for their headquarters.

Reduced fare to and from the congress will be allowed upon request to the ticket agent when purchasing tickets. All those who are planning to attend are advised to make their hotel reservations immediately by communicating directly with the hotel management.

Nearly all hotels at Atlantic City are operated on the American plan. The rates sometimes, therefore, seem rather expensive but as

a matter of fact this plan is usually cheaper than the European plan in Atlantic City. Expenses can be considerably reduced where 3 or 4 persons take a suite together. Because the reservations on the boardwalk are limited to about one-half the expected attendance at the congress, everyone intending to be there is urged to make reservations immediately.

Accommodations on the European or American plan can also be obtained frequently at a lower rate, at hotels not on the boardwalk. Hotel information can be obtained from the National Health Council, 370 Seventh Avenue, New York City.

SPECIAL MEETING OF THE ASSOCIATION

The Executive Board has voted to call a special meeting of the American Public Health Association to be held in Atlantic City at the time of the American Health Congress. Special meetings of the Association may be called by majority vote of the Executive Board, and this meeting has been called for the transaction of any business that may come before the Association at that time. An interesting scientific program has been arranged which is reported above.

COMMITTEE ON COMMISSIONING SANITARY ENGINEERS

The committee representing the American Society of Civil Engineers and the American Public Health Association, appointed to obtain a commissioned status for sanitary engineers in the United States Public Health Service, has made a report of its recent activities.

Through its chairman, George W. Fuller, the committee has sent to Congressman Madden, H.R., a draft of a short corrective act intended to improve the status of the sanitary engineers with respect to transportation of dependent members of their families and of personal and household effects upon permanent change of station.

The committee has decided that it would be unwise to proceed on a separate engineers' bill until H.R. Bill 10125* has been disposed of, since it includes certain provisions intended to improve the status of the sanitary engineers.

The committee believes that if it were to proceed on a separate engineers' bill at this time without giving due consideration to the general reorganization scheme that it would appear that the sanitary engineering group is not willing to coöperate with other public health workers with somewhat similar purposes. For that reason, the sanitary engineering group will support the general reorganization bill. However, if the present bill fails to receive the approval of the Congressional committee, then action will be taken to urge a favorable report upon that section affecting the sanitary engineers.

The report reads: "The section which deals with the sanitary engineers, section 5, while possibly unsatisfactory in some respects, is a good working basis upon which supporters of an improved status for the sanitary engineers of the Public Health Service may consistently appear before the Interstate and Foreign Commerce Committee of the House of Representatives at the proper time to urge favorable action by the Congressional committee upon that part of the bill at least which refers to the sanitary engineers."

However, members of these special committees, influential engineers and prominent public health workers are urged to give personal support to this bill either by appearing in person or appealing to the Congressional committee. To support the arguments in behalf of the sanitary engineers Mr. Fuller has attached to his report an interesting account of the accomplishments and present activities of engineering groups and individuals of the sanitary engineering profession.

INITIAL PLANS FOR BUFFALO MEETING

The organization meeting for the local committee of the Fifty-fifth Annual Meeting of the American Public Health Association, October 11–14, was held in Buffalo, N. Y., February 18. F. E. Fronczak, M.D., Commissioner of Health, Buffalo, and chairman of the local executive committee, presided.

Frances M. Hollingshead, M.D., director of The Buffalo Foundation, was appointed executive secretary of the local committee. Dr. Fronczak was authorized to appoint the chairmen of the various committees needed to complete the local arrangements and these chairmen in turn will have the privilege of selecting the members of their own committees.

* Printed in full on page 412.

Dr. Fronczak recalled the fact that the A.P.H.A. held its annual meeting at Buffalo in 1901 during the Pan-American Exposition, and that it was at that meeting that the first announcement was made of the discovery by Dr. Walter Reed of the cause of yellow fever.

The character and function of the A.P.H.A. was briefly outlined for members of the local committee by Homer N. Calver, executive secretary of the A.P.H.A. Mr. Calver emphasized the fact that the people of Buffalo would be responsible to a great extent for the success of the annual meeting and what followed in its wake. He also stated that the attendants at the meeting would be individuals who are actually engaged in some phase of public health work, and that South America and Mexico would be especially interested in this year's program because of its presentation of both tropical hygiene and rural hygiene subjects.

Chancellor Samuel P. Capen of the University of Buffalo pledged the support of the university faculty as a whole, making a special offer of the coöperation of any of the individual departments that could function in making the meeting a success. Ernest C. Hartwell, superintendent of schools, Buffalo, described the close relationship between the school department and the local health department and offered the support of the Buffalo education department. The endorsement of the meeting by the District Nursing Association of Buffalo was given by Mrs. Anne L. Hansen, R.N., superintendent of the Buffalo District Nursing Association and president of the New York State Nursing Association.

Charles H. Keene, M.D., of the Bureau of Health Education, University of Buffalo, and Fellow A.P.H.A., urged that the city of Buffalo take advantage of all the benefits accruing from this meeting stating that a new impetus must come out of such conferences. Of interest to visiting sanitarians will be the new filtration plant which Colonel Babcock, chief of the City Engineering Department of Buffalo, said he expects to be completed by October and he also hoped there will be a sewage disposal plant ready to demonstrate by that time. The medical profession was represented by Robert DeCeu, M.D., president of the Erie County Medical Society.

CONSTITUTIONAL AMENDMENTS

At the Annual Meeting in St. Louis a number of recommendations affecting the organization of this society were proposed to the Governing Council by the Committee on Organization. After discussion and approval of these recommendations they were referred to the old Committee on Reorganization, recreated as the new Committee on Constitution. The chairman of this committee reports that it does not seem wise to take final action on these recommendations at the present time since the important changes in the organization which they involve merit very considerable discussion by the members. Further, inasmuch as the recommendations relate to the affiliated societies it is extremely important that these societies have ample opportunity also to consider the recommendations. At the time of the special meeting of the Association in Atlantic City there will be held a conference of representatives of affiliated societies and the Executive Board together with the Committee on Constitution and after this discussion the Committee on Constitution expects to be in a position to formulate amendments to the Constitution and By-Laws which can be acted upon at the Annual Meeting in Buffalo.

AN INTERNATIONAL DISCONTENT

The *Medical Officer* of December 5, 1925, published in London, carries an editorial comment entitled "Health Salaries at Home and Abroad." It is based on the DeLamar lecture on "Public Health as a Career" read by Matthias Nicoll, Jr., M.D. Fellow A.P.H.A., before the School of Hygiene, Johns Hopkins University, January 28, 1924.

In part the editor reflects: "We should naturally be gratified if our American colleagues were able to derive benefit by the adoption of methods that have been tried out here, and we hope they will secure the help not only of the A.P.H.A., but also, and more especially of the American Medical Association. For although Dr. Nicoll is good enough to consider we have achieved much for the pay and dignity of health officers in this country, there remains a great deal to be done before our public health service can be said to offer a reasonably attractive career . . . it is safe to say that we have in this country at least 1,500 whole-time health officers who are receiving not more than £600 per annum.

"We believe that both here and in America very little can be done for these assistants without the help of the profession as a whole. In this country we are relying on the British

Medical Association, and in the United States no doubt the American Medical Association could play the same part. . . . The Society of Medical Officers of Health in this country and the A.P.H.A. in America can do valuable preparatory work and ensure the discipline of their members, but it is for the B.M.A. and the A.M.A. as the representative bodies of the whole profession in their respective countries, to take the final step in a matter that affects directly or indirectly every medical practitioner. But for Dr. Nicoll's kindly reference to the results already achieved in the United Kingdom we should not have ventured to link the case of American health officers with our own, as it is not for us to offer suggestions to other countries. At the same time the underpayment of public health officials is something more than a national matter, for we have ample evidence that the same conditions apply throughout the British Empire and in every country in Europe. It is therefore not in England and America alone that the practice of preventive medicine is treated as an inferior branch of the profession, and we hope that our colleagues at home and abroad will continue to advertise their discontent until this wrong has been righted."

LIST OF NEW MEMBERS

Suren H. Babington, A.B., Berkeley, Calif. (Assoc.)
Edward C. H. Bantel. C.E., Austin, Tex.. Professor of Civil Engineering, University of Texas, teaching courses in Sanitary Engineering
David Berman, B.A., M.D., D.P.H., Yellow Springs, O., Physician to Antioch College and Instructor in Hygiene and Sanitation
Aubyn Chinn, A.B., Chicago, Ill., Nutrition Director, National Dairy Council, Chicago
Morris M. Cohn, B.S., Schenectady, N. Y., Superintendent Bureau of Sewage Disposal, Department of Public Works
H. J. Felch, M.D., Ellensburg, Wash., County and City Health Officer
Henry C. Fisher, M.D., A.M., Washington, D. C., Colonel, Medical Corps, U. S. Army
George Fordham, Ph.G., M.D., C.P.H., Wyco, W. Va., Industrial Surgeon for Three Coal Company
Donald Scott Fraser, M.D., Pensacola, Fla., District Health Officer
Bernardo T. Gastelum, M.D., Mexico, D. F., Chief of Department of Health of Mexico City
Euvaldo D. Goncalves, B.S.L., D.M., Bahia, Brazil (Assoc.)
Amelia Grant, M.A., R.N., New York, N. Y., Assistant Executive Officer, Bellevue-Yorkville Health Demonstration
Roscoe N. Gray, M.D., San Francisco, Calif., Industrial Accident Administrative Work with Ætna Life Insurance Company
Menno Hostetler, M.D., Phillipsburg, Kas. (Assoc.)
Walter T. McFall, D.D.S., Greenville, S. C., Director Mouth Hygiene and Public Health Work and Instruction for the Parker School District, Greenville, S. C.
Byron M. Noone, Wilmington, Del. (Assoc.)
Harry G. Parker, A.B., A.M., Liberty, Mo., Professor of Chemistry William Jewell College, City Chemist Excelsior Springs, Mo., City Chemist, Liberty
John R. Scully, D.V.M.S., Sarasota, Fla., City and County Health Officer
Lewis R. Tryon, M.D., Hamburg, Pa., Sanitary Officer, U. S. Army, U. S. Veterans Bureau, Pittsburgh, Pa.
Clifton R. Wallace, M.D., Washington, D. C., Section, "Industrial Hygiene and Sanitation," U. S. Public Health Service, Washington, D. C.

DECEASED MEMBERS AND FELLOWS

Miss Helen Louise Johnson, prominent in the field of home economics, and elected a member of the A.P.H.A. in 1915 and a fellow in 1922, died the first week in March in New York City following an operation. Miss Johnson was a member of the American Home Economics Association and was active in formulating its national program. She also had served as president of the Home Economics Association of Greater New York.

At one time Miss Johnson was professor of home economics at the Rhode Island State College. She had held several editorial positions with prominent magazines including *Table Talk, Good Housekeeping, Harper's Magazine* and the *General Federation Magazine,* the official organ of the General Federation of Women's Clubs. For 4 years she served as national chairman of home economics of the General Federation of Women's Clubs. She had a national reputation as lecturer on home economics.

Following funeral services in New York City for Miss Johnson burial was at Watertown, N. Y., her former home.

Emma Francis, M.S., 215 East Foster Avenue, State College, Pennsylvania, elected a member 1921.

J. W. Freeman, M.D., Lead, S. D., elected a member 1920.

George B. Somers, M.D., Lane Hospital, San Francisco, Calif., elected a member 1920.

Professor Anne H. Strong, 300 The Fenway, Boston, Mass., elected a member 1918.

John Tombs, 5244 Rockland Avenue, Los Angeles, Calif., elected a member 1917.

FEDERAL HEALTH CORRELATION *

The following bill, to provide for the coördination of the public health activities of the government, and for other purposes, was introduced by Mr. Parker in the House of Representatives, March 8, 1926. It was referred to the Committee on Interstate and Foreign Commerce.

H. R. 10125

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

That whenever the President finds that it will promote greater efficiency in the conduct of the public health activities of the Government, he is authorized, by Executive order, to transfer to the Public Health Service all or any part of any executive agency (other than an agency of the military or naval forces, the War Department, the Navy Department, or the United States Veterans' Bureau) engaged in carrying on a public health activity. Any such Executive order shall also designate the records, property (including office equipment), personnel, and unexpended balance of appropriations to be transferred.

Sec. 2. (a) The President is authorized, by Executive order, to direct that officers or employees of the Public Health Service shall be detailed to any other executive agency which is carrying on a public health activity, in order to supervise or coöperate in such work.

(b) Upon the request of the head of an executive department or an independent establishment which is carrying on a public health activity, the Surgeon General of the Public Health Service is authorized to detail officers or employees of the Public Health Service to such department or independent establishment, in order to supervise or coöperate in such work.

Sec. 3. (a) The Surgeon General of the Public Health Service is authorized to detail medical or scientific personnel of the Public Health Service to educational and research institutions for special studies of scientific problems relating to public health and for the dissemination of information relating to public health, and to extend the facilities of the Hygienic Laboratory to health officials and scientists engaged in special study.

(b) The Secretary of the Treasury is authorized to establish such additional divisions in the Hygienic Laboratory as he deems necessary to provide agencies for the solution of public health problems, and facilities for the coördination of research of public health officials and scientists and for demonstrations of sanitary methods and appliances.

Sec. 4. (a) The Secretary of the Treasury is authorized to transmit to Congress estimates of the amounts necessary for the construction, on the site now occupied by the Hygienic Laboratory, of buildings adequate for the Public Health Service.

(b) The administrative office and bureau divisions of the Public Health Service in the District of Columbia shall be administered as a part of the departmental organization, and the scientific offices and research laboratories of the Public Health Service (whether or not in the District of Columbia) shall be administered as a part of the field service.

Sec. 5. (a) Hereafter sanitary engineers, dental officers, and scientists of the Public Health Service, selected for general service and subject to changes of station, shall be appointed by the President, by and with the advice and consent of the Senate, subject to the same conditions and limitations as medical officers of the Public Health Service, except that—

(1) Examinations shall be in the several branches of the profession of the person to be appointed;

(2) Any sanitary engineer, medical, dental, or other scientific officer in the Public Health Service upon the date of passage of this Act, or transferred to the Public Health Service under the authority of this Act, after examination by a board of officers convened by the Surgeon General of the Public Health Service, and upon the recommendation of such board and the Surgeon General, may be appointed to any grade designated by such board and approved by the Surgeon General; and in computing longevity pay and pay period the service of any such officer shall be counted in the same manner as though he were in the service on June 30, 1922;

* See pages 402, 408 and 448.

(3) Whenever in the opinion of the Surgeon General of the Public Health Service commissioned officers are not available for the performance of permanent duties requiring highly specialized training and experience in scientific research, including the duties of chiefs of divisions of the Hygienic Laboratory, any person, after examination by a board of officers convened by the Surgeon General of the Public Health Service and upon the recommendation of such board and the Surgeon General, may be appointed to any grade designated by such board and approved by the Surgeon General.

(b) The Surgeon General of the Public Health Service shall designate the grades of commissioned officers of the Public Health Service other than medical officers, corresponding to the grades of medical officers.

(c) Hereafter commissioned officers of the Public Health Service shall be entitled to promotion according to the same length of service as officers of corresponding grades of the Medical Corps of the Army, and the Surgeon General of the Public Health Service shall have the equivalent rank of, and shall be entitled to the same pay and allowances as, the Surgeon General of the Army.

(d) The limitation now imposed upon the number of Assistant Surgeons General and senior surgeons of the Public Health Service, on active duty, is hereby repealed.

(e) Hereafter officers of the Public Health Service in the grade of Assistant Surgeon General on field service shall be designated and known as medical directors.

Sec. 6. Hereafter the Secretary of the Treasury shall appoint, in accordance with the civil-service laws, all officers and employees, other than commissioned officers, of the Public Health Service, and may make any such appointment effective as of the date on which the officer or employee enters upon duty.

Sec. 7. There is hereby established in the Public Health Service a Nurse Corps, which shall consist of a superintendent and such other nurses as the Secretary of the Treasury may deem necessary. The members of the Nurse Corps shall be entitled to receive the same pay and allowances as nurses of the Army.

Sec. 8. Hereafter the Advisory Board for the Hygienic Laboratory shall be known as the National Advisory Health Council, and the Surgeon General of the Public Health Service, with the approval of the Secretary of the Treasury, is authorized to appoint, from representatives of the public health profession, five additional members of such council. The terms of service, compensation, and allowances of such additional members shall be the same as the other members of such council not in the regular employment of the Government, except that the terms of service of the members first appointed shall be so arranged that the terms of not more than two members shall expire each year. Such council, in addition to its other functions, shall advise the Surgeon General of the Public Health Service in respect of public health activities.

Sec. 9. As used in this Act, the term "executive agency" means any board, bureau, division, service, or office in the executive branch of the Government.

CANADIAN NATIONAL HEALTH CONGRESS

The Canadian National Health Congress will be held in Toronto, May 3–7. The congress will represent the Ontario Health Officers Association, the Canadian Public Health Association and the Canadian Social Hygiene Council. The annual meetings of the Canadian Public Health Association and the Canadian Social Hygiene Council will be held during the week of the congress at Toronto and there will be sectional conferences of laboratory workers, public health nurses, child hygienists and social hygienists.

Dr. George E. Vincent, president of the Rockefeller Foundation, and Professor C.-E. A. Winslow, professor of public health at Yale University and president of the American Public Health Association, will be among the speakers from the United States.

Among the subjects to be discussed are: Periodic Health Examinations, Medical Aspects of Immigration, and Immunization Against Disease.

MEMBERS OF THE EXECUTIVE COMMITTEE OF THE PENNSYLVANIA PUBLIC HEALTH ASSOCIATION

Left to right, back row—Dr. Edgar S. Everhart, Miss Alice O'Halloran, Dr. William C. Miller, Dr. J. Treichler Butz, Dr. Raunick; bottom row—Dr. Wilmer Krusen, Dr. Carey J. Vaux, Dr. Charles H. Miner, Dr. Howard C. Frontz, and C. B. Auel.

PENNSYLVANIA PUBLIC HEALTH ASSOCIATION MEETS

The second annual meeting of the Pennsylvania Public Health Association was held at Philadelphia, February 16–17. A committee on Administrative Practice was appointed at the request of the American Public Health Association, consisting of Dr. J. Treichler Butz, Allentown; Dr. W. C. Davison, Kingston; and Dr. Harold B. Wood, State Health Department, Harrisburg.

City health administration was the subject of the first session, when Dr. C. J. Vaux, Commissioner of Health, Pittsburgh, talked on "What Is Being Done by City Health Officers," and Dr. Harold B. Wood of the Pennsylvania State Department of Health spoke on "How Cities Can Improve Their Health." Dr. W. Frank Walker, field director of Administrative Practice of the American Public Health Association discussed these two addresses.

Professor C.-E. A. Winslow, professor of public health at Yale University and president of the American Public Health Association, and Dr. A. C. Abbott, director of the School of Hygiene, University of Pennsylvania, were the speakers at the evening session, February 16.

Several officials of the Pennsylvania State Health Department and the City Health Department of Philadelphia attended the sessions.

Dr. Charles H. Miner, secretary of health of Pennsylvania, was appointed chairman of a committee to organize county public health associations throughout Pennsylvania.

The following officers were elected: President, Dr. Wilmer Krusen, Philadelphia; First Vice-President, Dr. Carey J. Vaux, Pittsburgh; Second Vice-President, Dr. Howard C. Frontz, Huntingdon; Secretary-Treasurer, Dr. Wm. C. Miller, Harrisburg; Assistant Secretary-Treasurer, Dr. Edgar S. Everhart, Harrisburg.

The members of the executive committee consist of the officers of the association and the following: Dr. Charles H. Miner, ex-president of the association, Harrisburg; Miss Alice O'Halloran, Harrisburg; Dr. W. C. Davison, Kingston; Dr. J. Treichler Butz, Allentown; Dr. J. Frank Small, York; and C. B. Auel, Pittsburgh.

The next annual meeting will be held in Pittsburgh and Dr. Carey J. Vaux, director of the Pittsburgh Department of Health, was appointed chairman of the program committee.

BOOKS AND REPORTS

The Art and Practice of Medical Writing—*By George H. Simmons, M.D., Editor and General Manager Emeritus, American Medical Association, and Morris Fishbein, M.D., Editor, The Journal of the American Medical Association. Chicago: American Medical Association,* 1925. 163 pp. Price, $1.50.

The authors of this book have had a wide experience in the reading, preparation, and publishing of manuscripts. They rightly protest against the carelessness, and oftentimes ignorance, of medical writers, and give examples which one could scarcely credit unless experience had made one familiar with the subject.

The first two chapters are devoted chiefly to composition and rhetoric. The fifth and sixth chapters consider words and spelling and are among the best in the book, even though we cannot entirely agree with all statements. The rest of the book is given up to the preparation of medical papers for publication, and is largely a style manual of the American Medical Association Press. In this part the budding author will find all about proof reading and proof correction, the preparation of cuts, selection of good backgrounds for photographs, preparation of half-tones, etc. There are two useful supplements, the first of which gives a list of all of the periodicals in the world which one needs to consult, with information concerning them and the proper abbreviations to be used in quoting from them; while the second gives those less well known, or obsolete.

The book will be found very useful and deserves a place with the well known work of Sir T. Clifford Allbutt. In spite of the fact that the material had the benefit of criticism while running in the *Journal of the American Medical Association,* it is not free from misprints even in the spelling of proper names, one of the worst sins of a medical writer.

M. P. RAVENEL

Hygiene of Sex—*By Max Von Gruber. Authorized English translation. Baltimore: Williams and Wilkins,* 1926. 169 pp. Price, $1.50.

This book is intended to deal "with a delicate subject in a straightforward fashion, with a correct approach and find a mental scientific exactness." It does.

The complicated process of fertilization and cell division is clearly described so that anyone may readily understand. With this background the fundamental principles of heredity are explained, and the part played by the parental chromatin clearly set forth in a very interesting way.

The results of sexual excess and venereal disease are shown and an appeal made to reason and common sense.

Limitation of conception too is handled in a very rational manner, and the healthy and the intelligent advice to produce as many children as they can expect to feed and bring up. The author's style is clear, and the printing is very well done. An excellent book.

C. A. GORDON

Science and the Modern World—*Lowell Lectures,* 1925. *By Alfred North Whitehead, F.R.S., Sc.D. (Cambridge), Hon.D.Sc. (Manchester), Hon.LL.D. (St. Andrews), Fellow of Trinity College in the University of Cambridge and Professor of Philosophy in Harvard University. New York: Macmillan,* 1925. 296 pp. Price, $3.00.

When one has done a long turn at reviewing would-be, near, pseudo and jazz science, it is a tremendous relief to turn to a book written by a master, showing in every page preparation, thought, and mental ability, with an absolute freedom from affectation or attempt at theatrical effects. The greater part of the book is made up of the Lowell Lectures for 1925, to which have been added two addresses given at other times and places, and two chapters, "Abstraction" and "God," which are published for the first time.

The book is a study of some aspects of western culture during three centuries, especially as it has been influenced by the development of science. The author believes that the mentality of an epoch "springs from the view of the world which is, in fact, dominant in the educated sections of the communities in question." In every age science, esthetics, ethics and religion have played a marked part in the

effective outlook of people, but each age has its dominant preoccupation, and during the three centuries considered science has asserted itself at the expense of older points of view. There is such a thing as provincialism in time as well as in place, and it seems possible that the scientific mentality of the modern world is a successful example of such provincial limitation.

The function of philosophy is to "harmonize, refashion, and justify divergent intuitions as to the nature of things. . . . Its business is to render explicit, and—so far as may be—efficient, a process which otherwise is unconsciously performed without rational tests." From these standpoints philosophy is the most effective of all intellectual pursuits.

In a book so crowded with matters of interest, it is difficult to select one subject above another for comment, but we believe that for the readers of this JOURNAL the chapters on "Religion and Science" and "Requisites for Social Progress" will appeal to the greater number. The author treats of these subjects with vast sympathy and understanding. In view of what both religion and science mean to mankind, the future course of history depends upon the decision this generation makes as to the relation between them. Many beliefs held by the early Christians have proved to be wrong and the church has adapted itself to the recognition of these errors. The apparent conflict between geological science and religion distressed both Protestants and Catholics. To-day evolution is equally a stumbling block. Theology has shown gradual development just as science has done, and in the past neither has always been wholly right. The author sees a gradual decay of religious influence in European civilization. In spite of revivals and reactions, the peak of each revival is lower than its predecessor, and each period of reaction reaches a lower depth. There is a tendency for religion to "degenerate into a decent formula wherewith to embellish a comfortable life." A strong plea for toleration is made. In the evolution of knowledge a contradiction works the first step in progress toward victory, and in this lies the reason for great tolerance, a duty summed up "once and forever, in the words, 'Let both grow together until the harvest.'" Christians have grievously failed to follow this precept given by Christ himself.

The author considers the book a record of a great adventure in the region of thought, shared in by all of the races of western Europe. "The tale is the epic of an episode in the manifestation of reason. It tells how a particular direction of reason emerges in a race by the long preparation of antecedent epochs, how after its birth its subject-matter gradually unfolds itself, how it attains its triumphs, how its influence molds the very springs of action of mankind, and finally how at its moment of supreme success its limitations disclose themselves and call for a renewed exercise of the creative imagination. The moral of the tale is the power of reason, its decisive influence on the life of humanity. The great conquerors from Alexander to Caesar, and from Caesar to Napoleon, influenced profoundly the lives of subsequent generations. But the total effect of this influence shrinks to insignificance if compared to the entire transformation of human habits and human mentality produced by the long line of men of thought from Thales to the present day, men individually powerless, but ultimately the rulers of the world."

M. P. RAVENEL

Medical Heredity—*Distinguished Children of Physicians (United States, to 1910). By William Browning, Ph.B., M.D. Baltimore: The Norman, Remington Company,* 1925. 250 pp. Price, $4.00.

The author has given us a book the preparation of which has involved a great amount of research, and the collection of facts concerning physicians and their progenies which have been largely hidden from the public eye.

It is difficult to evaluate his results and conclusions since his terms do not accord with those in general use. He says that he uses the term "heredity" in "the general sense," whatever that may mean. Later he speaks of "hereditary taste and tendency." He tells that his plan has been to "collect lists of distinguished immediate descendants, and to see in what direction and how far they contribute an important part to the general activities." With this object, he has given us a list of some 3,000 prominent Americans whose fathers were physicians. It may well be a matter of pride to the medical profession to note the number of distinguished men in various lines who claim parenthood from physicians, but the material gathered does not seem to indicate a true inheritance of any particular bent or talent. We find listed 2 presidents, 54 U. S. senators, 158 congressmen, 11 secretaries of war, 27 cabinet members, 111 army officers, 389 men of science,

148 men of letters, 59 artists, 50 musicians, 27 actors, and many more in other lines of endeavor. The author does not stress the crooks and queer people who show medical descent, though such names as Elisha Perkins, Hostetter, and Dr. Cook, the Arctic explorer, are found.

It is interesting to note that many prominent American families were founded by European physicians who came to this country in the early days. It is also interesting to note that in general the small towns seem to have furnished a greater amount of ability than the large cities, in spite of the preponderance of doctors in the large cities. In this respect, New York, Philadelphia, and Baltimore do not seem to have made decisive contributions to their respective states, and it is a question whether or not Boston was mainly responsible for the high standing of Massachusetts. The author concludes that "it is evident that big cities have not proven the great recruiting ground for high-grade medical heredity." When one considers the big things which were done by country practitioners in the early days, one cannot help wondering if the independence, courage, and self-reliance which were necessary to those practitioners did not have a marked effect in producing sturdy qualities. While the cities had not yet developed the Sybaritic ease for the big men so universal now in our hospitals, consultation and support were always at hand.

The author pays his compliments to our alleged prohibition in no uncertain terms and shows that in the period of our history which he has studied physicians were as a class frequent users of alcohol, yet their record for heredity is "superb." In view of this and other facts which he brings forward, experimental as well as historical, he holds that there is little or no evidence that the use of alcohol is injurious to posterity.

The first part of the book describes methods and sources; the larger part is devoted to the tables listed under their proper headings, while the rest is given chiefly to the author's comments on the material which he has collected, every page of which is full of spice. Four appendices furnish data of especial interest, one listing those families in which the medical profession has been followed through a number of generations—the family of Porter showing 8 consecutive generations of physicians. While it is difficult to evaluate the exact influence of heredity in man, and practically impossible to do so from the material Dr. Browning presents, the book itself is unique, full of material which is rich in human interest, and which at least may furnish the basis for more exact future studies. It is fascinatingly interesting and furnishes an enormous amount of food for thought which should be translated into action for the benefit of future generations.

M. P. RAVENEL

Nouveau Traité de Médecine—*G. H. Roger, Fernand Widal, P. J. Teissier, Secretaire de la Redaction, M. Garnier. Fascicle V. Tome I. Maladies Infectieuses et Parasitaires (fin.), Ed. 2. Paris: Masson et Cie,* 1924. 452 pp., 4 pls., 196 figs. Price, 40 fr.

The fact that this fascicle of this monumental French treatise on medicine has passed to the second edition so quickly is indicative of the interest in its contents. The section dealing with cancer appears in the second volume of this fascicle. The first volume treats of chancre, granuloma of the genitals, poradenique chancre and bubo, goundou and pian, relapsing fevers, Sodoku, malaria, blackwater fever, kala azar, oriental sore, trichinosis, filariosis, strongylosis, distomatosis, coccidiosis, sarcosporidiosis, echinococcosis, bilharziosis, trypanosomiasis, and erythremia, each from the pen of some eminent French investigator. The treatment of each involves a description of the morphology and life cycle of the etiological factor, the clinical manifestations of the infection, pathology, diagnosis, prognosis, treatment, and prophylaxis.

It is interesting to note that trichinosis is receding in importance with the rise of refrigeration. For the prevention of echinococcosis Dr. Guiart prescribes the destruction of all infected carcasses at slaughter houses and the exclusion of dogs from all abattoirs. Vincent and Kieux, who write the section on malaria, support the practice of quininization of the infected population as a prophylactic measure especially in localities where the endemic index is low. They recognize the impracticability or great difficulties where the index is high and in the case of aestivo-autumnal malaria in which the resistance of the gametocytes to quinine is high. They also support the use of quinine as a prevention against infection, stating that this procedure has increasing evidence in its favor as a restrictive measure of high value.

Measures directed against Anopheles of highest value are the engineering projects to replace stagnant waters with their vegetation by dry land and running water. These are more

fundamental than the secondary measures of destruction of larvae or screening against the adult mosquito. They also urge the high value of the education of the community in the method and meaning of all the prophylactic measures against malaria and significantly attribute to the moral factor the function of dispersing certain forms of social opposition which may successfully nullify all efforts at malaria control. C. A. KOFOID

The Social Worker's Approach to the Problem of Venereal Disease—*Published by the Committee on Venereal Disease of the Charity Organization Society of the City of New York*, 1925. 26 pp. Price, 25 cents.

This statement on a subject of much importance to sanitarians is a most valuable and authoritative one. Dr. John H. Stokes, in his foreword, says, "The social worker and the follow-up system in dealing with venereal disease are part of medical research; in fact, the importance of observation and of the ability to follow the patient over a period of years is more vital in the problem of syphilis than in any other aspect of medicine."

The introduction outlines briefly and crisply the need for, and value of, social service follow-up in the control of syphilis and gonorrhea. As one illustration a study by the New York Association for Improving the Condition of the Poor is cited, the pregnant women living in eight city blocks on the middle west side, a colored district, being the objects. The society states, "of the 1,224 pregnancies, coming under our supervision, 286 or 23.3 per cent were apparently complicated by syphilis. A study was made of the previous pregnancies of these women, and it was shown that they had ended in miscarriages and stillbirths in 20.8 per cent of the total number. The society made an earnest attempt to get these women, while under their care, under treatment for syphilis. This effort was only partially successful but even with partial treatment the percentage of miscarriages and still births was noticeably diminished to 11.1 per cent."

A useful chapter on "Terminology as Used in Venereal Disease Work" makes up the second section of the booklet. A discussion on "Infection," when, how, and where it exists and is transmitted, follows. The two remaining sections deal with "The Case Worker's Approach" and "The Relation of the Social Worker and the Hospital in the Attempt to Control Venereal Disease." The book recommendations and the case histories outlined add to the real merits of this report.

The committee responsible for the preparation and publication of this material deserves much credit for the brief, readable, and practicable suggestions. RAY H. EVERETT

Why We Behave Like Human Beings—*By George A. Dorsey, Ph.D., LL.D. New York: Harper & Brothers*, 1925. 512 pp. Price, $3.50.

The subject treated of in this book requires a wide scientific knowledge. Written for the lay public, the subject matter must be simplified, and terms which would not be acceptable in a scientific work must be used. In popular writing, it is always a question of how far scientific accuracy should be sacrificed to the lack of training in the reader for whom the book is designed. In general we think the author has hit a fair mean. The book is mostly sound from a scientific point of view, though it is not correct in many details of biology and other sciences. It is especially strong in the way it has simplified the sciences relating to the behavior of human beings, and presents them in a way that the average man can readily understand. The style of the book is peculiar, to say the least, and there are many errors in the grammatical structure. The author's style is best described by the word "stacatto," or machine gun. Sentences (?) of from one to four words abound, and in his attempt to be concise he sometimes leaves us in doubt as to which of two preceding propositions he refers.

Positive statements are sometimes made where caution would be advisable and where there is strong opinion to the contrary. The gibbon is said to be the most primitive ape, the most humanoid and nearest to the source of man's origin, which does not agree with the opinion of Osborn and Gregory that "the stem of the chimpanzee and the gorilla branched off at a more recent date and is more nearly allied to that of man." Recently devised blood tests also give evidence of the closer relationship of the chimpanzee than the other great apes. We are told that the premature closure of the sutures stops the growth of the brain, though anthropologists in general do not accept this view.

The chapter in which the author ventures into medicine and bacteriology is especially weak. It was submitted in whole or in part

to two scientific men, neither of whom is a bacteriologist. Elephantiasis is spoken of as being dropsy or edema of the leg, which it is not. He implies that all of us would suffer from elephantiasis if the lymph vessels did not contain valves so that the lymph must flow in one direction! In speaking of immunity and the test for human blood, we are told that "ape's" blood is so closely related to human blood that "they are almost twins," and we can use ape's blood as a specific antigen in developing the antibodies by which we detect human blood. The use of the word "ape" in this respect is loose, and the information as given is news to serologists. A new etiology for pernicious anemia is given, namely the tertian malarial parasite. There is confusion in the use of the word "spore" in connection with malarial parasites. It is applied to the asexual merozoite and the sexual sporozoite alike, and we are told that the "wart" (oöcyst) "breaks up into spores each of which produces myriads of thread-like bodies." Quotidian fever is for the author synonymous with estivo-autumnal. In the World War we are told that there was one death in American troops from typhoid fever for every 25,000 soldiers. The official figures show 287 deaths among 4,128,478 soldiers, or approximately one death for every 14,000 men.

Koch is said "to have given the human race its first rational theory of disease," an achievement which is universally and correctly credited to Pasteur. We find other surprising statements. "Bacteria" are said to "defy hours of boiling water"—a curious measurement to say the least, while their spores (which are very much more resistant than the bacteria) "resist a temperature of 212 degrees." This is a typical example of the loose statements one finds scattered throughout the book. The term "tubercular" instead of "tuberculous," which is the correct form, is used.

The latter half of the book is in the main better written than the first half. A quotation will give an idea of the author's method of treatment: "There is nothing simple about our nervous system, nor even of any one of its billions of component cells, but as long as we keep in mind its nature we can make progress in understanding it—and that is a long step towards understanding pa, ma, and the baby."

The book is interesting and holds the attention, but we cannot understand why so many errors have been allowed to enter. "Science for the Layman" should be more exact if anything than for the scientific man, since the latter knows how to protect himself. It is a question whether the incorrect statements will not do an amount of harm to the public which will counterbalance the good of those which are correct.

M. P. RAVENEL

Old Americans—*By Ales Hrdlicka, Curator United States National Museum. Baltimore: The Williams & Wilkins Company,* 1925. 438 pp. Price, $10.

This interesting book is the result of studies which have extended over 14 years. During this time physical measurements have been made of some thousand "Old Americans" in an endeavor to determine the characteristics of the American type, which the author holds has arrived. The so-called typical American is easily recognized by foreigners. The author asks if the influence of new environment and habits of American life have resulted in such perceptible modifications of physical characteristics as to form a well recognized type? If so, are they in the direction of improvement or is there some degeneration?

He defines "Old Americans" as white people whose ancestors on each side of the family were born in the United States for at least 2 generations—that is, all of those whose parents, as well as all 4 grandparents, were born in this country. The stock which he has studied is made up of those whose ancestors on both sides of the family were all in this country before 1830. Actually the ancestors of many have been here much longer, some going back beyond 1700.

The author concludes that the Old American is slender, with narrow hands and feet, with brown as the prevailing color of the hair, a long oval face, reduced cheek bones, relatively long nose, moderately developed jawbone, and thin lips. He is frank, healthy and intelligent. The Old American stock is nearer to the stock of Great Britain than any other branch of whites. It is as different from any of its component factors as English, Irish, and Scotch types are different from each other. From the morphological standpoint all of the characteristics of the Old American are favorable, showing in some respects perceptible improvement and in none degeneration. The only stock found in America which differs perceptibly from others, and in some points disadvantageously, is that of the isolated Appalachian highlanders. Inbreeding and lack of cultural development appear to be responsible for this.

The predictions for the future are hopeful. If the Old American could remain without further admixture for several generations the type would become crystallized and fixed, but there seems little hope of this. The Neo-American type will in the average be tall, more sanguine and perhaps less spare than the old, but it will remain an intermediary white type in pigmentation, head form and other respects. It will be a wholesome and effective type since research has shown that such mixtures as will occur may be accepted as beneficial rather than harmful, and all the conditions of life and environment in this country are propitious. The fixing of the American type will be delayed but there is no indication that any danger exists.

The work is largely one on anthropometry. The author does not venture into predictions concerning the effect on health, but since physical characteristics and health are so closely bound together, we can confidently predict that the future American, from the physical standpoint alone, will be better able to resist disease than those who have gone before.

The publishers have produced a book excellent in every respect. It is abundantly illustrated by 38 reproductions of photographs of typical old Americans. Tables and charts aid in the understanding of the text. The work is full of valuable and interesting information.

M. P. RAVENEL

The Mosquitoes of Egypt—*By T. W. Kirkpatrick, B.A., F.E.S., Senior Entomologist, Ministry of Agriculture, Egypt. Cairo: Anti-Malaria Commission, Egyptian Government, Government Press, Cairo, Egypt,* 1925. 224 pp., 31 pl., 2 maps. Price, P. T. 30.

Among the mosquito literature of the year 1925, Mr. Kirkpatrick's elaborate report takes the first rank. No novel points are brought out regarding the actual destruction of mosquitoes, but ingenious modifications of plans followed in America and elsewhere are noted. The previous history of the study of mosquitoes in Egypt is described, a list of the species found is given, and this is followed by a systematic account with tables and full descriptions of all the stages which have been studied. The volume is full of good things, but the features which make it superior to all recently published studies are the chapters on the ecology and biology of mosquitoes in general, and on the distribution, seasonal prevalence, ecology and biology of the species occurring in Egypt.

It is most interesting to find that anti-mosquito work has progressed to the point that we are no longer relying absolutely upon the most obvious measures, that is, the ones to which we must look for immediate relief, such as oiling and drainage and the like. We have come to the point, as indicated in this paper and in the investigations of Senior-White in India and Dr. W. Rudolfs in New Jersey, where it is obvious that close ecological studies must be made, not only of mosquitoes in general, but of the individual species. Nowhere, perhaps, in the whole animal kingdom does there occur a concrete group of species that differ so much among themselves in important variations in their biology which affect all questions of practical control. Recently work has been begun on the chemical constitution of mosquito-breeding waters, and upon the character of the waters favorable to the increase of certain species of mosquitoes as contrasted to other species. The hydrogen ion content, for example, has been studied by the writers mentioned and by MacGregor in Mauritius and in England, as well as by others.

Egypt does not seem to be a country especially favorable to the development of mosquitoes, and it does not afford breeding places for very many species. The isolation of the country by barren deserts, and the lack of woods and forests, account for the small number of species. The temperatures occurring in the country are on the whole suitable for rapid breeding. The rainfall is very small, but no mosquitoes except the desert species are dependent upon it, and the abundant supply of water from the Nile provides suitable breeding places throughout the year in spite of the great evaporation during the summer.

Mr. Kirkpatrick does not consider that mosquitoes are a necessary concomitant of agriculture according to Egyptian practices, except perhaps in the sparsely cultivated areas of low-lying salt land, where pools are often present throughout the year, and in the places where rice is cultivated. Drainage will take care of the first type of breeding place and as to the anopheles which breed in the rice fields, the medical men must determine whether the prevalent species of *A. pharoensis,* Theobald is a malaria carrier. The report does not go into the question of the carriage of disease.

L. O. HOWARD

Federal Narcotic Laws—*A Digest and an Editorial Article. For Doctors of Medicine. Los Angeles: Los Angeles County Medical Association,* 1925. 45 pp. Paper. Price, 25 cents.

The authors of this pamphlet have done a distinct service to the medical profession in writing it. The Los Angeles County Medical Association has rendered an equal service in its publication. The first part of the book is devoted to a digest of the federal narcotic laws, and regulations and rulings which have been made under them. The second part consists of a masterly editorial, written in a spirit of constructive criticism, while the rest of the pamphlet is devoted to an appendix giving more fully the laws and regulations which have been referred to.

It is a matter of common knowledge that the Harrison Law with its various modifications in the shape of amendments, regulations and rulings, constitutes a puzzle which requires the acumen of a Philadelphia lawyer to unravel, a common result being that physicians are hampered in their work, often shift their responsibilities, unwittingly break the law, and are in constant dread of being charged with violation. There is little doubt that the profession in general favored the law as first passed, even though it was camouflaged as a tax measure. Our leading medical journals gave much time and attention to careful interpretations and explanations. As time went on, the administration of the law changed hands, sometimes very rapidly; rules were made which apparently had little justification in the basic law, and which frequently showed a misunderstanding of the problems involved. Matters have become worse as time went on rather than better. The enforcement of the act is in the hands of a layman who professes to be able to sit in Washington and dictate to physicians throughout the United States what they shall and shall not do in the practice of their profession. There is no doubt that many cases arise in which honest and conscientious physicians are restricted in their use of opiates to amounts less than the legitimate and necessary requirements of the case. It is equally certain that this has prevented the successful treatment of cases of addiction, and that many of these unfortunates have in consequence been driven to illegitimate sources of supply. Cases have repeatedly occurred in which prosecuting officials, who are laymen and who in general know nothing about medicine or opium addiction, have set themselves against the opinion of honest, experienced and capable physicians, sometimes a number of them in consultation.

"In brief it can be stated that, because of the rules and regulations as they now stand, contrary to the purpose of the Harrison Act and contrary to Sections 1 and 2 of the Act, a physician is prohibited from prescribing, dispensing, or administrating narcotic drugs for—

a. Treatment of acute conditions resulting from narcotic addiction disease

b. Treatment of acute conditions incident to narcotic addiction disease

c. Treatment of curable or incurable disease complicated by narcotic addiction disease

d. Treatment of narcotic addiction disease complicated by curable or incurable disease

e. Preparing narcotic addicted individuals for treatment of narcotic addiction disease

f. Chronic morphinism."

The result is "that any physician who attempts to devote his time to the treatment of narcotic addiction disease at the present time, no matter how conservative he may be, or conscientious, or careful, or no matter how humanitarian his purpose, will invariably come into conflict with laws."

That the physicians of this country have stood for such interference with their rights under the law is surprising. Several explanations may be given which need not be gone into here. The writer of the editorial in this pamphlet very properly calls attention to the fact that many physicians are sidestepping their responsibilities. The interpretation of the law has been left largely in the hands of laymen, who, it is to be feared, have frequently taken advice from medical men least competent to give it. In the medical profession, as well as outside of it, we find those who seize upon every new subject which will give them a little notoriety, and exploit it as an issue. They wander from one issue to another, never devoting the time necessary to learn the facts concerning any of them. That a few of these people are honest cannot be doubted, but none the less they are foolish and ill-balanced. Many of them are branded with the dollar mark, while some delight in the notoriety and temporary prominence which they enjoy. "It is nothing short of a crime that these individuals who harp on drugs one minute, or on sex hygiene or some other scarehead the next, should be allowed to appear in public schools."

We hope for a nation-wide distribution of this pamphlet and recommend a careful study

of it to all physicians, and to all interested in public health from any standpoint whatsoever, especially health officers, whose duties bring them into constant contact with the opium problem.

M. P. RAVENEL

Handbuch der Tropenkrankheiten—*By von Prof. Dr. C. Mense, Band III. Malaria und Schwarzwasserfieber by Prof. Dr. Hans Ziemann, Ed. 3. Leipzig: Verlag von Johann Ambrosius Barth,* 1924. xiv + 592 pp., 6 pls., 139 figs. in text. Price, Rm. 40.

Because of the marked increase in the incidence of malaria in European countries during and since the war this volume acquires a significance far beyond that of other tropical medical subjects. The author is widely known as a specialist on this subject and broadened his contacts with the disease in Syria and Palestine during the war and after its close in the malaria clinics in Berlin. The book reflects the intimate contact of the malarial expert and practitioner with this disease and its perplexing problems. The sections dealing with mosquitoes, epidemiology, therapy, provocative methods, quinine, prophylaxis, malaria in the war, and black-water fever have been extensively revised in the light of the latest findings. Because of its protean complications malaria presents, like syphilis, wide ramifications into modern medical problems.

Of especial interest to workers in public health and preventive medicine are the chapters upon mosquitoes, epidemiology, relations to geographical and climatic conditions, to sex, constitution, temperament, employment and age, to the different races, to natives in the malarial districts, to birth rate, morbidity and mortality in malarial districts, and upon the subject of immunity. Laboratory workers will find the chapter on the malarial parasites very well organized, well illustrated, and the differential features of the species admirably and lucidly set forth. Field workers will find a concise account of malarial and non-malarial Anopheline mosquitoes and a concise account of their general biology with special references to detection, preventive measures and the epidemiological analysis of diverse malarial phenomena.

It is of interest to note that the discrepancies sometimes found between the abundance of Anopheline vectors and the malarial index are to be solved by ecological analysis of factors such as access by the mosquitoes to cattle, by distribution and density of certain groups in the local population, as well as by immunities alike in man and in female mosquitoes. Epidemics and pandemics have relations to many factors, such as absence of endemic malaria, lowered resistance among elements of the population accompanied by bad economic conditions, hookworm infection, abundance of infectious mosquitoes, and climatic factors. The causes of the reduction of malaria with the advance of culture are obscure. Drainage, restriction of breeding places, access to cattle and other mammals for blood, and the result of the general use of quinine, all seem to enter into the process but not equally or uniformly.

The book is condensed; the more important matters are in large type; the illustrations are abundant and adequate; the bibliographies extensive; the arrangement logical and the presentation exceptionally succinct and lucid.

C. A. KOFOID

Everyday Mouth Hygiene—*By Joseph Head, M.D., D.D.S., Dentist to the Jefferson Hospital, Philadelphia. (2nd ed.) Philadelphia and London: Saunders,* 1925. 67 pp., 39 ill. Cloth, $1.00 net.

Dr. Head prefaces his book with the statement that "Cleanliness of the teeth and gums will absolutely prevent decay, and may sometimes cure it." Accordingly, half of his pages are spent in the minute description of the way the toothbrush and dental floss should be handled to clean all surfaces of the teeth and the spaces between them. Should the lay reader patiently follow these instructions he would doubtless have fewer bacteria in his mouth. Modern studies of nutrition indicate, however, that oral cleanliness alone will not prevent decay. It must be accompanied by adequate nutrition. One wonders whether his suggested procedures give enough consideration to the possibility of injuring the soft tissues. The author has done well to emphasize the importance of the size of the toothbrush. A brush with small bristles reduces the pivoting arc of each bristle, and thus increases bristle friction.

The remainder of the book deals with the dreadful consequences of tooth neglect (so depicted as either to repel the reader or to drive him to the nearest dentist) and with the care of removable plates and bridges. He also adds a few words to explain irregularities in the development of teeth in children.

This little book gives a clear and complete description of the process of cleaning teeth.

B. J. B.

HEALTH DEPARTMENT REPORTS

IRA V. HISCOCK

Detroit, Mich. *-City Health,* the monthly bulletin of the Detroit Department of Health, contains in the January number a 39 page report of the department for the year 1925. The function of the department is "to prevent disease, and the spread of disease, and to instigate and stimulate the development of programs designed to build up positive robust health."

Among the health high lights of 1925 are noted the lowest death rate in the history of the city (10.9); the lowest tuberculosis death rate (90.4); the next to the lowest infant mortality rate (79.7; 1924, 78.0); and the lowest diphtheria death rate (9.5). Through the cooperation of the Board of Education and the U. S. Census Bureau, with some financial aid from the city and several public utilities companies, an official census was taken, giving the city a population of 1,242,044 as of May 31, 1925.

Of the 10 principal causes of death, organic heart disease headed the list; pneumonia, second; congenital debility, malformation and premature birth, third; violence (except suicide), fourth, and tuberculosis (all forms), fifth. Deaths as a result of automobile accidents were higher than for any previous year with a total of 328.

The total public health fund for the fiscal year 1925–26 approximated $1.62½ per capita, of which $1.50 were spent for purely health work (83½ cents outside of hospitals and capital costs). Interesting accounts of the activities of each of the 8 bureaus and of special subdivisions are included in the report.

A division of special investigation has charge of the examination and licensing of midwives, inspection and supervision of maternity houses, boarding houses, orphan asylums, and the inspection and licensing of day nurseries. "A very potential source of trouble was removed during the year when, through the efforts of the State Welfare Board, the newspapers agreed not to accept advertising of adoption homes, or boarding homes unless such boarding homes were licensed."

In Detroit the department of health, through the division of school health service, is responsible for physical examinations, the exclusion and diagnosis of communicable disease, vaccination and immunization against communicable disease, and the inspection of the sanitary equipment of school buildings. Both public and parochial schools are included. It is stated as the hope of the department that eventually the examination of school children, with the exception of the indigent, will be carried on by private physicians at the request of parents. To further this idea, a notice was sent last year to all parents advising annual complete medical examinations by private physicians and stating that properly filled out examination blanks by private physicians would be accepted in lieu of the school examination. A gratifying response to this note is reported.

A study of prenatal clinic activities shows the benefit of this care to both mothers and babies. Data are submitted which indicate that less than half as many babies die whose mothers have prenatal care early as die among mothers who wait until after 28 weeks of pregnancy. The same is true of maternal deaths. The report suggests, however, that part of the difference may be due to a somewhat lower degree of intelligence among those who attended the clinic late in pregnancy.

One of the interesting features of the report is a detailed tabular classification of personnel according to type and amount (full or part time) of service rendered. This organization chart shows a total of 1,039 employees, including 492 in hospital or sanatorium work, and 17 sanitary policemen.

Clinton, Mass.—The public health department of this town of 12,979 people has rendered an excellent report for the year 1925. The report of 51 pages is comprehensive, is well printed in readable type, contains essential statistical data, and gives the organization of the board of health and of the department. A financial statement shows an expenditure for the year of $15,518.

An epidemic of scarlet fever traced to milk is reported. "One of the outstanding beneficial results of this epidemic was the installation by this dealer of a modern pasteurizing plant which practically assures the public of clean milk from this source in the future. This department advises and suggests that

all milk hereafter sold in Clinton be pasteurized for the better protection of public health in this community." Clinton now has over 50 per cent of its milk supply pasteurized.

The report indicates that 1925 was one of the healthiest years ever enjoyed by this town. It is stated that householders carefully reported diseases even when a physician was not in attendance. A death rate of 10.4 per 1,000 population with a birth rate of 20.99 is recorded. There were 28 deaths of infants under 1 year of age, 20 under 1 month, giving an infant mortality rate of 74.5.

New Jersey—The 48th annual report of the New Jersey Department of Health for the year ending June 30, 1925, contains 274 pages of text and statistical data, followed by a classified index. The director's report emphasizes the need of safeguarding lake resorts and roadside refreshment stands, ("Their name is legion and they dispense anything from a glass of water to a full course dinner"), and of a more effective law requiring vaccination of all school children. In view of the continued spread of rabies among dogs and the dangers created, compulsory preventive vaccination of dogs against this disease is suggested. It is pointed out that only by the passage of appropriate legislation providing for vaccination, muzzling or confining of dogs will people be protected from rabies.

In considering the problem of milk control, it is stated that more than 10,000 dairies are producing milk in the State, most of which is sold to consumers at some distance. The importance of careful and frequent dairy inspections, of pasteurization, and of tuberculin testing of herds from which raw milk is sold is again indicated. "In addition there is needed a State law to unify milk standards." The shellfish industry, valued in the State at more than ten million dollars, is supervised by the Bureau of Chemistry of the Department of Health. A plan to permit the removal of shellfish from polluted waters to be planted in approved areas, conserved a large quantity of sea food which otherwise would have been lost or sold in a dangerously polluted condition. Activities of the department in supervising the shellfish industry are outlined in detail.

Continued progress is indicated in the reduction of infant mortality to a rate of 70 for the year. Particularly gratifying is the fact that a large number of rural communities have adopted the child hygiene program and are employing special nurses for this work. This is said to have been made possible by the fact that the continuous child hygiene program promotes and encourages the grouping of a number of communities in the employment of a single nurse who carries on practically all the essential educational preventive health activities.

A training course for health officials was developed in coöperation with the summer school of the state university. Lectures were given by the staff of the state department of health and by outside speakers.

Over half the report is occupied by data prepared by the bureau of vital statistics. A slight decrease appears in the death rate for 1924 from 11.49 in 1921, 12.09 in 1922, and 12.22 in 1923, to 11.77. The infant mortality rate has declined from 182.1 in 1906, and 104.7 in 1916, to 70, in 1924. An interesting graph shows a decline in deaths under 5 years of age from 77.49 per 10,000 population in 1879 to 21.33 in 1924. While deaths from tuberculosis of the lungs have declined from 27.32 per 10,000 population in 1879 to 7.67 in 1924, deaths from cancer show an increase from 3.70 per 10,000 population in 1879 to 10.07 in 1924.

Harrison County, W. Va.—The second annual report of the Harrison County Health Department for the year 1925 shows again that public health work is coöperative health work. In his introductory statement and in the body of the report, reference is made by the health officer to the help given by various official and voluntary agencies in developing this county unit. The Farm Bureau, the daily press, the weekly county newspapers, as well as local physicians and others, share in the work. The department consists of a health officer, a sanitary inspector, 2 nurses, and a clerk-stenographer.

The county covers an area of 418 square miles and has a population of approximately 45,000 exclusive of the city of Clarksburg. About 16,000 children attend school, there being 190 school buildings ranging in size from 1 to 20 rooms. During the year 120 schools were visited, and 8,343 pupils were examined by a physician. A total of 5,682 children were found to have defects (8,810). In 1924, 4,953 children were examined and 3,757 were found to have defects. Notices of

these defects and literature explaining their harmful effects were sent to parents. In each school room a weight record and health score are posted, with red stars opposite each child's name indicating the normal condition of eyes, ears, nose, throat, teeth, skin, chest, vaccination, nutrition, and thyroid. Ten points each are scored for normal conditions, while blank spaces denote defects. As defects are corrected, blue stars are placed in the blank spaces, increasing the score 10 points for each star. When a pupil scores 100 per cent (10 red or 10 red and blue stars) he is entitled to a gold star before his name and is known as a "gold star pupil," a much coveted title. Personal hygiene has become a part of the regular school curriculum.

Over 400 persons have received complete anti-typhoid inoculations; and more than 1,000 children have received complete toxin-antitoxin immunization treatments. An extensive tuberculosis survey has been completed by a field nurse of the State Tuberculosis Association. This is said to have had an important influence in raising funds for another nurse for tuberculosis work. Maternal and infant welfare activities include: 150 Little Mother's League classes; 71 home nursing classes; preschool child health conferences; a health exhibit at the county fair; and a motherhood correspondence course.

Madras.—The annual report of the health officer of the City of Madras for the year 1924 consists of 193 pages of text and tabular material, illustrated by graphs, charts, and photographs of smallpox cases of various types of severity. The report is bound in blue cardboard covers, and the size of the pages are larger than usual, being 8" x 13". The population is estimated at 529,620.

The respective figures for birth and death rates are 44.2 and 41.7 per 1,000 population, as against 41.3 and 40.4, the quinquennial average. The infant mortality rate is 264.1 per 1,000 births, as against 254 for 1923 and 277.4 the quinquennial average.

After effectively directing attention to certain outstanding problems the health officer well emphasizes the secret of success in health administration work as follows: "Public Health workers have to depend for success in their efforts on 3 main factors, (1) money, (2) authorities who should make the grants, and (3) intelligent and enlightened coöperation of the public. Sanitary reform means money and like any commodity, as much of it can be purchased as money is available for."

During the year an intensive campaign for vaccinating infants and children was undertaken. Each medical vaccinator was required to inspect regularly 30 to 40 houses daily within the area of his district. During his inspection he had to take a census of the tenants and inhabitants in each house, to make inquiries as to the vaccination condition of all members of each family, and to examine them, infants and children in particular.

A monthly health bulletin for the city has been started to acquaint the citizens with the health of the city, and to educate them in ways of guarding against diseases, and to make the public understand and avail themselves of the facilities afforded by the corporation in the matter of medical relief, childbirth, etc. Copies of this are distributed freely to municipal councillors, public offices and firms in the city having a large number of employes, and other bodies, clubs and hotels, where they may be useful. Out-of-door demonstrations, lantern slides, and exhibits are utilized. A national baby week was also held during the year.

The Commonwealth Fund—Important developments in the fields of child welfare, health education, and rural health work are described in the seventh annual report of the general director of the Commonwealth Fund for the year ending September 30, 1925.

One of the most important features of the report, perhaps, is the emphasis given to certain fundamental principles to be observed in the development of plans and the carrying out of health programs of a demonstration character. Up to the present time, demonstration programs for child health have been developed in Fargo, North Dakota; Athens, Georgia; Rutherford County, Tennessee; and Marion County, Oregon. "The work continues in each of the four places, following the same general principles but with various adaptations to local conditions, and with continued emphasis on the preventive and educational aspects of community health work. The policy of the program has called for the active coöperation from the medical practitioner, and from the local departments of health and education in full recognition of the fact that lasting benefits from a

community health program depend in the last analysis upon local understanding and support, and the eventual local assumption of complete responsibility. Correspondingly the program in each demonstration has been limited both financially and otherwise to practicable possibilities."

The medical aim of the demonstrations is to assist the physicians of a community in their own efforts to raise the general level of medical practice, especially as it relates to maternity and childhood. There has been close coöperation with the local medical society, aided and stimulated by a committee especially appointed for the purpose.

Developments in the field of school health education are also noteworthy. Effort has been made to work with and through the school teachers and the school administration. In each of the demonstrations there has also developed a demand for the services of the staff to assist with courses in health education in normal schools, in teacher training institutions, and in classes intended solely for local teachers. In Fargo in the nursing field, the emphasis has been somewhat less upon school children which at first occupied the major portion of time, and more upon preschool children and expectant mothers. The exclusion from school of children with colds has been developed to a very high degree and the plan is believed by the school authorities to have been beneficial. The interest of parents appears to be a growing factor, the percentage of parents in attendance at the physical examination of school children reached the high average of 70.6 for all grade schools. In Athens, where major emphasis during the second year of the demonstration was given to medical examination of children and health education, the consumption of milk as a part of the school lunch increased from practically zero to a point where an average of 45 per cent of all children had acquired the habit of milk drinking in school at the end of the last school year.

In the field of child guidance, considerable progress has been made. The National Committee for Mental Hygiene completed the child guidance demonstration in Los Angeles. The permanent clinic following the demonstration is the sixth resulting from activities of this division of the Fund's program, as clinics have previously been established in St. Louis, Dallas, Minneapolis, St. Paul, and Memphis. Two year demonstration clinics are being operated in Cleveland and in Philadelphia. Unfortunately, space does not permit a more detailed account of the work of these clinics, important activities of the division of education, and of the child health demonstrations in Austria.

BOOKS RECEIVED DURING FEBRUARY, 1926

TEXT-BOOK OF PHYSIOLOGY. By Arthur Dermont Bush, B.S., M.D. Philadelphia: Lea and Febiger, 1926. 331 pp. Price, $3.50.

HYGIENE OF SEX. By Max von Gruber, M.D. Baltimore: Williams & Wilkins, 1926. 169 pp. Price, $1.50.

THE HUMAN BODY AND HEALTH. (Revised.) By Alvin Davison, M.S., A.M., Ph.D. New York: American Book Co., 1924. 320 pp. Price, $1.16.

HANDBOOK OF SAFETY AND ACCIDENT PREVENTION. By Fred G. Lange. New York: The Engineering Magazine Co., 1926. 512 pp. Price, $5.00.

PUBLIC RELATIONS. A Handbook of Publicity. By John G. Long. New York: McGraw-Hill, 1924. 248 pp. Price, $3.00.

PRINCIPLES OF PUBLICITY. By Glenn C. Quiett and Ralph C. Casey. New York: Appleton, 1926. 420 pp. Price, $3.00.

FEDERAL NARCOTIC LAWS. A Digest and an Editorial Article for Doctors of Medicine. Los Angeles: Los Angeles County Medical Association, November, 1925. 45 pp. Price, 25 cents.

THE QUARTERLY REVIEW OF BIOLOGY, BEGINNING IN JANUARY, 1926. Baltimore: Williams & Wilkins. $5.00 a year ($5.50 outside Postal Union) $1.50 a copy.

HEALTH CONTROL IN MERCANTILE LIFE. A Problem in Conserving Human Energy. By Arthur Brewster Emmons, 2d, A.B., M.D. New York: Harper, 1926. 234 pp. Price, $3.00.

POPULATION PROBLEMS IN THE UNITED STATES AND CANADA. (3d ed. revised.) Edited by Louis I. Dublin. New York: Houghton Mifflin, 1926. 318 pp. Price, $4.00.

ANIMAL PARASITES AND HUMAN DISEASE. By Asa C. Chandler, M.S., Ph.D. New York: Wiley, 1926. 573 pp. Price, $4.50.

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON

AMERICAN CHILD HEALTH ASSOCIATION. Some Tendencies in Health Education, 1925.

A review of the health programs in teacher training institutions, based on material submitted by candidates for a European Traveling Fellowship, financed by the Metropolitan Life Insurance Company, and offered by the Division of Health Education of the American Child Health Association.

BARRY, SARAH C. Aseptic Technic in Providence. *Am. J. Nursing*, 26:3 (Mar.), 1926.

An account of the development of communicable disease control and care of cases of infectious diseases in Providence, R. I.

BLUM, JULIUS, and MELLION, JACOB. The Rôle of Dentition in the Diagnosis of Rickets. *Jour. A. M. A.*, 86:10 (Mar. 6), 1926.

A study of the relation of dentition and rickets which concludes that although dentition is delayed even in mild cases it is of little diagnostic significance, owing to variability in the time of eruption of deciduous teeth.

BROWN, PHILIP W. The Nature, Incidence, and Treatment of Endamebiasis. *Jour. A. M. A.*, 86:7 (Feb. 13), 1926.

The author finds evidence of increasing incidence of amebic dysentery in temperate zones; he reviews the diagnostic and therapeutic measures.

BUTCHER, B. H. Use of Chinic Acid in the Differentiation of the Colon-Aerogenes Groups. *J. Am. W. W. Assn.*, 15:2 (Feb.), 1926.

A brief note suggesting the use of chinic acid as a differential test for the identification of species of the colon-aerogenes group.

CALLENDER, G. R., and HALL, M. W. Tuberculosis in Filipinos. *Am. Rev. Tuberc.*, 12:4 (Dec.), 1925.

An exhaustive study of Filipine morbidity and mortality statistics indicating the Filipinos to have two and a half times as much tuberculosis as Americans, and that the trend apparently is upward.

COMMONWEALTH FUND, THE. Seventh Annual Report (Feb.), 1926.

An account of the progress of the demonstrations and other activities of the fund.

CUMMING, HUGH S. A Community Health Program. *Pub. Health Rep.*, 41:9 (Feb. 26), 1926.

A comprehensive résumé of the needs and problems of local health administration.

DICK, GEORGE F. The Control of Scarlet Fever. *Pub. Health* (Michigan Dept. of Health), 14:1 (Jan.), 1926.

A non-technical discussion of the diagnosis, immunization, and treatment of scarlet fever.

FROST, W. H. A Review of the Work of the United States Public Health Service in Investigations of Stream Pollution. *Pub. Health Rep.*, 41:3 (Jan. 15), 1926.

A review of the considerations which determined the scope of the Public Health Service studies in stream pollution since 1913.

GILBERT, RUTH, and LANGWORTHY, VIRGINIA. Standardization of the Wassermann Test. *Am. J. Syphilis*, 10:1 (Jan.), 1926.

A progress report outlining the procedure adopted in the attempt to evaluate the several methods now in use; including a report on the methods of choice.

GOLDBERGER, JOSEPH; WHEELER, G. A.; LILLIE, R. D.; and ROGERS, L. M. A Further Study of Butter, Fresh Beef, and Yeast as Pellagra Preventives, with Consideration of the Relation of Factor P-P of Pellagra (and Black Tongue of Dogs) to Vitamin B. *Pub. Health Rep.*, 41:8 (Feb. 19), 1926.

A report of the results of pellagra-preventive feeding experiments with the named foods, supplementing earlier studies by the authors. It was found that butter was a poor preventive, that beef and yeast prevented pellagra but were deficient in beriberi vitamin.

HARRIS, FRASER. Men Who Have Experimented on Themselves. *Scient. Monthly*, March, 1926.

A popular review of some of the research workers who have used themselves as experimental animals.

HOSKINS, J. K. Quantitative Studies of Bacterial Pollution and Natural Purification in the Ohio and the Illinois Rivers. *Pub. Health Rep.*, 41:8 (Feb.), 1926.

A record of the seasonal changes in bacterial findings of polluted river water, with method of evaluating findings of *B. coli*.

HOWES, JOHN B., 2ND. Heliotherapy. *Boston M. & S. J.*, 194:7 (Feb. 18), 1926.

A discussion of place of heliotherapy in tuberculosis with directions for treatment followed by interesting case histories.

HUBBARD, S. DANA. City Enforcement of Drug Laws. *Med. J. & Rec.*, 123:4 (Feb.), 1926.

A survey of the problem of the patent medicine, with a plea for legal requirement of a list of constituents on label and prohibition of dangerous drugs.

KELLEY, C. M. Devices Useful in School Clinics. *Boston M. & S. J.*, 194:7 (Feb. 18), 1926.

Height and weight tables and intelligence quotients adapted to the principle of the slide rule for quick calculation, together with suggestions for a school-child personality chart and class physical record chart. Worth careful study by school physicians and nurses.

INTERNATIONAL HEALTH BOARD. Eleventh Annual Report, Jan., 1925.

A review of the accomplishments of the many activities of the organization.

ISZARD, MIRIAM S. Calcium and Tuberculosis. *J. Ind. Hyg.*, 7:11, 1925.

A discussion of the influence of inspired calcium dust on tuberculous processes in the lungs.

KELLY, EDWARD J. Progress of Sewage Disposal Program of Chicago—I. *Eng. News-Rec.*, 96:9 (Mar. 4), 1926.

Brief description of the Chicago sewage disposal problem, in the first of two articles on this subject to appear.

LAMBERT, ALEXANDER. The Prevention of Heart Disease. *Atlantic M. J.*, 29:5 (Feb.), 1926.

A statement of the public health problem of heart disease, and the need for preventive measures.

LEWIS, I. M. Colon Bacteria in Some Fissure Springs of the Balcones Fault Zone. *J. Am. W. W. Assn.*, 15:2 (Feb.), 1926.

A discussion of the significance of colon bacteria in spring waters.

MCCLUSKEY, K. L., and EICHELBERGER, LILLIAN. The Effect of Injections of Sanocrysin on Normal and Tuberculous Dogs. *Am. Rev. Tuberc.*, 12:4 (Dec.), 1925.

Part I, a study of the effects of sanocrysin on 4 normal dogs shows the drug to be eliminated principally from the kidneys, 60 per cent of the gold being recovered in the urine; albuminuria and diarrhea were produced.

MCCRUDDEN, F. H. The Conservation of Life and Health by Means of Periodical Health Examinations. *Boston M. & S. J.*, 194:6 (Feb. 11), 1926.

Quotations from Dobell to show that in 1861 he urged health examinations—which are now considered a new thing in preventive medicine—introduce a consideration of examples of preclinical diagnosis.

MURRAY, GEORGE R. Focal Sepsis as a Factor in Disease. *Lancet*, 1:8 (Feb. 20), 1926.

A discussion of the common sites of focal infection, the organisms usually detected, and the resulting maladies.

PELOUZE, P. S., and VITERI, L. E. A New Medium for Gonococcus Culture. *Jour. A. M. A.*, 86:10 (Mar. 6), 1926.

Presenting a culture medium in which an emulsion of calves' brain replaces ascetic or hydrocele fluid, allowing autoclaving after the medium is completely prepared.

PROCEEDINGS OF THE FORTIETH ANNUAL MEETING OF THE CONFERENCE OF STATE AND PROVINCIAL HEALTH AUTHORITIES OF NORTH AMERICA, 1925.

A collection of papers and reports presented at the annual meeting, including among other excellent addresses two upon smallpox by C. C. Pierce, Senior Surgeon, U.S.P.H.S., and A. J. Chesley, M.D.

SEARS, FREDERICK W. To What Extent Can Diphtheria Be Eliminated by Means of the Schick Test and Toxin-Antitoxin Immunization? *Pub. Health* (Mich. Dept. of Health), 14:2 (Feb.), 1926.

An account of Dr. Sears' work in controlling diphtheria in Auburn.

SMITH, MAURICE I., and HENDRICK, E. G. Some Nutrition Experiments with Brewers' Yeast. *Pub. Health Rep.*, 41:6 (Feb. 5), 1926.

Oat kernel and casein having been found deficient in vitamins, 2 per cent brewers' yeast was added in feeding experiments. From these it was concluded that brewers' yeast contains nutritional value other than vitamin B, which is thermo-stabile, and will supplement adequately a ration in which oat kernel is the sole source of protein.

SOPER, G. A. Advances in Cancer Research. *Pub. Health News* (N. J. State Dept. of Health), XI:4 (Mar.), 1926.

A summary of anti-cancer researches both abroad and in America, and the relation of research to the practical work of cancer control.

STUART, G., and KRIKORIAN, K. S. The Sachs-Georgi Reaction: Enquiry into its Causation, Specificity, and Practical Value. *Am. J. Syphilis*, 10:1 (Jan.), 1926.

A comparison of the Wassermann and Sachs-Georgi reaction which concludes that the latter is of less value than the Wassermann reaction.

SWEANY, H. C., and WASICK, M. M. The Effect of Sanocrysin on the Tubercle Bacillus in Vitro. *Am. Rev. Tuberc.*, 12:4 (Dec.), 1925.

A repetition of some of Mollgaard's experiments; in which it is found that sanocrysin inhibits growth on agar in 1:500,000 dilutions, and in bouillon at 1:1,000,000. Exposure to sanocrysin in relatively high dilutions did not kill the tubercle bacillus in these experiments.

SYKES, K. A. H. Tubercle Bacilli in Feces. *Lancet*, 1:6 (Feb. 6), 1926.

A note on the examination of the feces of 225 tuberculous children showing that if tubercle bacilli are found in the sputum they are also found in the feces, and that in many cases of pulmonary tuberculosis in children the bacilli are absent in the sputum but present in the feces.

WENGER, O. C. United States Conducts Clinic for Venereal Diseases. *Nation's Health*, 8:2 (Feb.), 1926.

A description of the U. S. Public Health Service venereal disease clinic at Hot Springs, Ark.

WOOD, F. C. Knowledge of Cancer Increases. *Nation's Health*, 8:2 (Feb.), 1926.

A review of the findings of cancer research.

YORK, WARRINGTON. Malaria Treatment of General Paralysis of the Insane. *Lancet*, 1:9 (Feb. 27), 1926.

A consideration of the value of treating paresis by means of malaria; concluding that the proposed treatment is efficacious, and that the procedure has led to improvements in the treatment of malaria.

LABORATORY

C. C. YOUNG

RECENT SUGGESTIONS RELATIVE TO THE SANITARY EXAMINATION OF WATER

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BY FAR the most important test made on water for sanitary interpretation is that for the *B. coli* group. For many years much effort has been expended in differentiating the various members of this group. In recent years separation into so-called fecal and non-fecal classes has been carried out in a number of studies, but aside from a few isolated instances the general trend of opinion has been that no sanitary significance attaches to this separation. It is the writer's opinion that there is no such reliable division, but that the so-called non-fecal types are all of fecal origin, but able to persist under adverse conditions. It is well established that this is true of the entire aerogenes type.

Two points of view exist as to delicacy of the test for *B. coli*. One class feels that all the *B. coli* must be found. The other lays stress upon promptness of results and number of samples that may be tested even if some of the attenuated or weaker forms are missed. As a matter of fact the present Standard Methods using lactose broth with confirmation misses much of the *B. coli* present, because when *B. Welchii* and *B. coli* are present together the former overgrows the latter in many instances and the latter is lost, also ability to ferment and produce acid is often lost unless plating for confirmation takes place promptly upon appearance of gas. Again, too much stress is laid by some workers on picking typical colonies on solid media and as only two colonies are picked on a plate, *B. coli* is missed. Hence the amount of *B. coli* found is a relative matter in any case. In consequence, attention has again centered the last few years on working out a medium which would be as near specific for the *B. coli* group as possible. Two in particular may be mentioned, "Gentian Violet Broth," Hall & Ellefson,[1] and "Brilliant-Green Bile," Muer & Harris.[2] The appearance of the former led to the development of the latter. The dyes are similar. It was soon noted that there was an entirely different effect in broth and in bile. In the former the dilutions which inhibit *B. Welchii* and *B. coli* overlap. In bile the dilutions are far apart. Winslow & Bolloff[3] have corroborated this fact. A committee of the American Water Works Association has performed an enormous amount of work in study of the brilliant-green bile during the last two years. The work is still in progress under charge of H. E. Jordan for the present year.

Attention is called to the excellent articles by Dunham, McCrady & Jordan,[4] J. J. Hinman,[5] and Norman J. Howard.[6] These reports need detailed study, particularly McCrady's summaries. It must also be borne in mind that the summaries present only a portion of the work done, since so much comparative work was performed on various preparations of media, before the work could get started, such as the statement of the first year's work of 30,000 tubes planted and 8,000 presumptives confirmed. Mount Prospect Laboratory results which were included in the preliminary work are not given in the tables; so a summary is here presented in the same form. In this work various preparations of oxgall and brilliant-green were used.

COMPARISON OF BRILLIANT-GREEN BILE (10 per cent gas, 72 hours) and Standard Lactose Broth (gas, 48 hours)

Water	Samples	Tubes with each medium	Presumptive Tubes — Confirmed Tubes: Broth	B. G.	Bile
Surface Raw and Stored.	194	582	266=80%	203=	98%
			214	198	
Chlorinated..	68	204	32=33%	7=100%	
			11	7	

Ratio of bile confirmed to broth confirmed, raw, etc., 93%, chlorinated 63%.

The first question is: Does the brilliant-green bile cut out *B. Welchii* and spore-formers both anaerobic and aerobic? In the committee's

work for the second year with 16 workers from all parts of the country from the Atlantic coast to the Pacific and from Canada to Arizona, in only 9 instances were spores noted in connection with 1,530 presumptive bile tubes. This makes a possible error at most of two-thirds of 1 per cent, but the presence of spores does not prove that *B. coli* was not also present to cause the test. It must be borne in mind that anaerobic spore-formers do not grow on aerobic plates. When they are present, frequently the confirmative plate contains no colonies at all. The spores found from the plates must then be aerobic. Of the aerobic spore-formers isolated by different experimenters and described throughout the literature, none grow in bile media even without brilliant-green. (See also Levine.[7])

The second question is: To what extent is the brilliant-green bile specific for the *B. coli* group? In the committee's first summary, 95 per cent of the presumptive bile tubes confirmed out of a total of 353 presumptive tubes by 6 workers. In the second year's summary with 16 workers out of 1,530 tubes 81 per cent confirmed. If the results of one worker are omitted, whose results were decidedly abnormal, there was a confirmation of 88 per cent out of 1,386 presumptives. It is certain that the truth is actually higher owing to inescapable errors of technic and chance in process of confirming, though there is a possibility of symbiosis in some cases. (See Leitch.[8]) Many of the cases which failed to confirm were in slow gas-formers. All secondary gas formation was in lactose broth, and experience has shown that there are forms that grow in bile but not in broth. Also the data is published of tube results as such. Study of corresponding dilutions in the two media and of occasional anomalies, such as .1 c.c.+1 c.c.—10 c.c.+, indicate the presence of *B. coli* as probably originally present but missed in confirmation.

The percentage of confirmation in brilliant-green bile increased with purification of the waters as follows:

	Raw	Stored	Filtered	Treated
Bile confirmed	616	211	89	101
Bile presumptive ...	739	241	95	109
Ratio	83%	88%	94%	93%

The third question is: What percentage of *B. coli* tests are missed by brilliant-green bile as compared with lactose broth? In the first year's report the confirmed brilliant-green bile tests were 79 per cent of the confirmed lactose broth tests (334 to 423 tubes). In the second year's report there were 1,234 brilliant-green bile confirmed tubes to 1,368 lactose broth confirmed, or 90 per cent. The result of the 2 years would be 1,568 to 1,791, or 88 per cent, not a serious loss. Examined in detail, the loss on raw waters was very low, increasing to the higher losses on stored, filtered, and chlorinated waters, in detail as follows:

	Raw	Stored	Filtered	Treated
Bile confirmed	853	211	89	101
Broth confirmed	860	252	113	161
Ratio	99%	84%	79%	63%

In 8 comparisons out of 31, the bile figures were above the broth, possibly due to interference of spore-formers or other forms in the latter medium.

If the bile presumptive tests are compared with the broth confirmed in the second year's report, there were 1,530 against 1,368 tubes, or a gain of 12 per cent.

There are three ways of using the brilliant-green bile:

First, as a preliminary to confirmation in place of lactose broth. This means a loss of 12 per cent of attenuated *B. coli*, average the country over for the 2 years work, but a saving of handling thousands of broth tubes resulting in negative confirmation. For example, in the second year's comparison only 54 per cent of the lactose broth tubes confirmed. If bile had been used instead of broth, 1,018 less tubes would have been handled. Particularly is this true of filtered and treated waters. To give some specific instances: At Kansas City, Mo., in the treated water out of 369 tubes yielding gas in broth only 17 confirmed. Brilliant-green bile yielded 7 tubes, all of which confirmed. At Washington, D. C., in filtered water out of 100 presumptive broth tubes 32 confirmed, with bile 32 presumptives gave 26 confirmed. In treated water 141 broth tubes gave 6 confirmed whereas 6 bile gave 4 confirmed. At Providence, R. I., in filtered and treated water 41 broth tubes gave zero confirmation against bile zero. At Minneapolis, Minn., in filtered and treated water 24 broth tubes gave 1 confirmed against bile zero. At Albany, N. Y., in treated water 46 broth tubes gave 4 confirmed against bile zero.

Second, as a confirming medium to lactose broth, transplanting from broth to brilliant-green bile.[4, 6] This method would gain over bile results for attenuated *B. coli* and lose when spore-formers interfere with broth. It would save plating on solid media and save at least one gas tube transplanting, as at least two colonies are transplanted for secondary gas.

Third, as a straight presumptive specific test without further confirmation. The writer strongly favors this third procedure. It has been so used for at least 6 years in examination of New York City waters. One does not care if it should give too high results on raw and polluted waters as it becomes almost entirely specific on purified waters. The medium gives the *B. coli* of significance in raw and polluted sources, and cuts out the devitalized *B. coli* from stored, filtered or chlorinated sources, which is a decided step in the right direction. Alexander Houston in his London annual reports states that if typhoid germs were in London's raw supply they would be so devitalized after passing through storage and filtration, and now chlorination, that they could not cause the disease. It is well established that typhoid germs in water die out rapidly, 90–99 per cent in a week, and disappear entirely in a few weeks at most. Cutting out devitalized *B. coli* yields information of prime importance in reference to typhoid or other water-borne diseases. There is no means of distinguishing animal and human *B. coli*. *B. coli* at most means only possible fecal contamination, less possible human contamination, still less possible typhoid germs, unless the source of supply is a river known to be contaminated by sewage. Why hunt for every trace of devitalized *B. coli* and then strive to explain away its presence? Brilliant-green bile gives a reliable relative picture of the sanitary quality of a supply from source to distribution system. For example, take last year's averages on a portion of New York City's water, as follows:

Source	Cause of Purification	B coli per 100 c.c. 1810.
Schoharie water, Shandaken		
Influent Ashokan Reservoir	Dilution & chlorination	95.4
Effluent Raw Ashokan Reservoir	Storage	2.7
Effluent Chlor. Ashokan Reservoir	Chlorination	0.01

The occurrence of gas on the first, second or third day is also of sanitary significance. *B. coli* from the disturbed sediment of aqueducts or pipe systems usually requires 2 to 3 days to produce gas and has practically no sanitary significance. If *B. coli* cannot produce 10 per cent of gas in brilliant-green bile in 3 days' time, why worry about it? Even 5 per cent gas usually means *B. coli*, but some precaution seems necessary against inversion of a small amount of lactose during sterilization. In those few instances where bile appears to yield too many unconfirmed tests, confirmation is still available.

That a certain amount of bile favors growth of *B. coli* has been shown by T. W. Melia[9] and by Levine.[10] This is also shown by the fact that the amount of gas is usually greater in bile tubes than in broth tubes. It must not be thought that 3 days are necessary for bile tests. Most tests occur in 1 or 2 days. Attenuation is the deciding factor. The amount of bile in the medium, 5 per cent, was chosen with due allowance for necessary dilution by the water tested. With fermentation tubes the final dilution is about 4 per cent. Lauter, in his tests at Washington, D. C., added 10 c.c. of water to 10 c.c. of media, which makes a final dilution of 2½ per cent bile and 1/20,000 brilliant-green. The bile medium has been greatly improved since it was first introduced. In the beginning the liquid bile was used and 25 per cent gas required. Next peptone was added. Then gas required reduced to 20 per cent. Next the amount of bile was reduced to 5 per cent. Meantime the use of desiccated bile had replaced the liquid bile to make the medium more uniform and on account of better keeping quality, as well as to obtain it fresh, as this had a bearing upon its acidity. The next step was to require only 10 per cent gas. The last step was to add brilliant-green. While 10 per cent gas within 3 days is considered positive for *B. coli*, it has been the practice in the New York City Water Department Laboratories to discard tubes which show no gas in 2 days, holding for 3 days tubes showing less than 10 per cent gas.

There is now available the entire brilliant-green bile medium, with constituents mixed dry, produced by the Digestive Ferments Co., Detroit, Mich. Directions for preparing the medium appear on the container. It has been tested at Mt. Prospect Laboratory, and appears suitable for use. It gives no gas with *B. paratyphosus B.* It makes a clear medium and is easy to prepare.

It might be well also to describe the method in use at Mt. Prospect Laboratory for making 100 c.c. tests on water. Half pint lightning jars (preserving) with glass covers are used, in which are placed the regular gelatin tubes inverted, cut off (100 mm. by 6 mm.) to just fit in slanting position in the jars with covers on. A brilliant-green bile medium containing 8 per cent dried oxgall and the lactose, peptone and brilliant-green in proportion is used. Of this more concentrated medium 100 c.c. is introduced into the jar and sterilized. The bile enters the small tube as with Dunham tubes. Of the water to be tested 100 c.c. is added (which need

not be measured as it fills the jar to the shoulder), making a final 4 per cent bile concentration. About 10 mm. of gas in the tube makes 10 per cent or a test. In fact when a positive test occurs the whole liquid shows fine bubbles. This strength of bile medium was chosen because in the Smith fermentation tubes 10 c.c. test, 10 c.c. of water are added to about 40 c.c. of medium making 4 per cent final bile content. Similarly for 1 c.c. water tests a small fermentation tube containing 6 to 8 c.c. is used making a final bile strength of about 4 per cent. However, this same small tube is also used for smaller quantities of water without regard to final strength of bile.

REFERENCES

1. *J. Bacteriol*, 3:329 (July), 1918.
2. *A. J. P. H.*, 10, 11:874 (Nov.), 1920.
3. *J. Infect. Dis.*, 31:302, 1922.
4. *J. Am. W. W. Assn.*, 14:535–540 (Dec.), 1925.
5. *A. J. P. H.*, 15:614 (July), 1925.
6. *Canad. Eng.*, April 21, 1925.
7. *J. Am. W. W. Assn.*, 9:612, 1922.
8. *J. Am. W. W. Assn.*, 13:186 (Feb.), 1925.
9. *A. J. P. H.*, 5, 11:1168 (Nov.), 1915.
10. *J. Am. W. W. Assn.*, 9:612, 1922.

CHANGE OF POLICY OF LABORATORY NOTES

A NEW POLICY has been adopted for the Laboratory section and was inaugurated in the February issue of the JOURNAL. Heretofore, brief abstracts of articles were used, but the editor has planned to devote this space each month to a résumé of one particular phase of laboratory practice.

The February issue carried a résumé of "Bacteriophage" by M. S. Marshall of the Michigan State Department of Health. This section in the March JOURNAL was devoted to "The Preparation of Silver Nitrate Ampules for the Treatment of Eyes of Infants at Birth" with 5 illustrations.

Some of the subjects for future issues are:

"Chemical Treatment of Tuberculosis and Vaccines in Immunization Against Tuberculosis," Dr. William Charles White, U. S. Public Health Service, Washington, D. C.

"The Present Status of Prophylactic Rabies Vaccination in Dogs," Dr. A. Eichhorn, Lederle Antitoxin Laboratories, Pearl River, N. Y.

"Recent Discoveries Concerning Cancer," Dr. Francis Carter Wood, Columbia University, New York City.

"Methods for the Purification and Concentration of Pneumococcus Sera," Dr. F. M. Huntoon, H. K. Mulford Co., Glenolden, Pa.

"Complement Fixation Test for Tuberculosis," Frank Maltaner, Department of Health, New York City.

"The Use of Toxin-antitoxin and Toxoid for Immunization against Diphtheria," Dr. W. H. Park, Department of Health, New York City.

"Relationships of the Streptococci Associated with Scarlet Fever," Dr. Anna Williams, Department of Health, New York City.

"The Preparation and Standardization of Tuberculin," Dr. E. R. Long, University of Chicago, Chicago, Ill.

"The Sanitary Control of Shellfish," Dr. H. E. Hasseltine, U. S. Public Health Service, Norfolk, Va.

"The Preparation and the Relative Merits of Media Used in Making Milk Counts," Dr. J. F. Norton, University of Chicago, Chicago, Ill.

"The Practical Method of Concentrating the Antibody of Antipneumococcus Serum," Dr. Floyd D. Felton, Harvard Medical School, Boston, Mass.

The editor intends to make this section of the JOURNAL of greater interest to public health executives and increase its value to laboratory workers who do not have library facilities. Individuals competent to evaluate the vast amount of material in each phase of laboratory practice will prepare the articles for this section.

The associate editor will continue to use articles on new laboratory procedures and equipment.

VITAL STATISTICS

LOUIS I. DUBLIN, PH.D.

VITAL STATISTICS IN 1925

California—Although there were 87,100 babies born in California during 1925, as compared with 86,899 in 1924, the birth rate for the year just closed was 21.7 as compared with 22.2 last year. The death rate for the year was 14.1 per 1,000 as compared with 14.5 in 1924, deaths numbering 56,900 last year and 56,751 for the previous 12 months.—*San Francisco Bull.*, Jan. 2, 1926.

Texas—Statistical reports compiled by the Texas State Board of Health on communicable diseases for the years 1924–1925, show an appreciable decrease for 1925 over 1924 of the following diseases: dengue, malaria, dysentery, typhoid fever, measles, pellagra, trachoma, and tuberculosis. That Texas was free from an epidemic of measles during 1925, is shown by an 86.9 per cent decrease of this disease during the year. The next largest decrease of any disease is that of dysentery, there being 64 per cent fewer cases of this intestinal trouble reported. This reduction together with the 13.4 per cent fewer cases of typhoid fever in 1925 bespeaks the good results of the work being done in Texas for improved sanitation and water purification. The intensive mosquito control work is showing results also, there being a reduction of 58.9 per cent in dengue fever cases in 1925 and 28.4 per cent in malaria cases. Diseases showing a slight decrease in the number of cases are: mumps, diphtheria, scarlet fever, smallpox and whooping cough. The only diseases showing any appreciable increase in number of cases during 1925 are influenza, pneumonia and chickenpox. Influenza heads the list with an increase of 85 per cent; pneumonia comes next with 56.3 per cent and chickenpox an increase of 18.3 per cent.—Texas State Board of Health *Weekly News Letter*, Jan. 16, 1926.

New York City—The birth rate of New York City in 1925 was the lowest on record, as was the death rate of 11.49, with the exception of 1921, when the rate was 11.08. The 1924 death rate was 11.61. The number of births was 128,790 and the number of deaths 71,863. The outstanding feature of the mortality was the decrease in the number of deaths from contagious diseases of childhood and a pronounced decrease in the number of deaths from tuberculosis.—*Jour. A. M. A.*, 86:124 (Jan. 9), 1926.

Detroit—From the standpoint of deaths, infant deaths, and births, and a lack of outbreaks of any serious disease, the year 1925 has been Detroit's healthiest year. While not every year yields a death rate lower than the preceding one, the downward trend of Detroit's death rate is steady and unquestionable. In 1900 the death rate was 16.3 per 1,000. The rate of 10.9 for 1925 is the lowest the city has ever experienced. The next lowest rate was 11.0 in 1921. If the rate of 1900 had prevailed in 1925, 5,000 of those who are alive would have died. The infant death rate is also steadily declining. In 1910 the infant mortality rate was 185.7. In 1925 there were 2,550 deaths of infants under 1 year of age, giving a rate of 78.8, which is second only to the 1924 rate of 78.3. The birth rate in 1916 was 33.4. Since then the rate has declined steadily to 27.0 in 1924 and 26.1 in 1925. The death rates for communicable diseases were low. For certain diseases, including tuberculosis, diphtheria, scarlet fever and typhoid fever, they were the lowest in the history of the city. The previous low rate for tuberculosis was 94.2 and the 1925 rate was 90.7; the previous low rate for diphtheria was 14.3 and the 1925 rate was 9.7; the previous low rate for scarlet fever was 4.5 and the 1925 rate was 4.3; and the previous low rate for typhoid fever, 2.7, was bettered by the 1925 rate of 2.5.—Detroit *Weekly Health Review*, Jan. 2, 1926.

Milwaukee—Although the 1925 death rate was 10.6 as compared with 9.8 in 1924 and the infant mortality 75.2 in 1925 as compared with 68 in 1924, the death rate was lower than the average for the last 5 years and is the third lowest general death rate among the 16 largest cities of the country. The infant mortality ranked ninth. The virulent smallpox epidemic which contributed 87 deaths and an influenza-pneumonia epidemic which took many lives did

much to raise the death rate. There were fewer cases and deaths from typhoid fever, scarlet fever and chickenpox than were reported in 1924 but more of smallpox, diphtheria and measles.—*Mil. Journal,* Dec. 31, 1925.

Minneapolis—While the death rate for 1925, 11.52, was below the average of cities in its class reporting to the Federal Census Bureau, it was slightly higher than the 1924 rate of 11.20. The figures for the year show a falling off in the birth rate as compared with the previous year (22.01 for 1925 and 23.30 for 1924). These rates are based on a population of 425,435, the census bureau estimate for July 1, 1925. The infant mortality rate for 1925 was 60.8 as compared with 53.8 in 1924.—*Minn. Tribune,* Jan. 1, 1926.

Providence—Providence attained the second lowest death rate in its history in 1925 with a figure of 12.33. The lowest death rate, 12.23, was recorded in 1921. Heart disease led all other causes of death, claiming 517 victims during the year as compared with 495 in 1924. Pneumonia caused 324 deaths, while chronic nephritis carried off 305 persons. There were 9 deaths from typhoid fever and 6 from scarlet fever. There were 20 deaths from diphtheria, which gave the city its lowest death rate from this cause, and 16 from measles. Pulmonary tuberculosis reached a new low record, 122 deaths being registered as against 149 in 1924. Cancer claimed 330 victims, apoplexy 303 and diabetes 63. A total of 79 persons died as the result of automobile accidents, as compared with 59 in 1924.—*Prov. Journal,* Jan. 8, 1926.

Syracuse—During 1925 Syracuse had the lowest general death rate, the lowest infant mortality rate and by far the lowest diphtheria rate in the city's history. These low rates for 1925 are of significance because the 1924 rates constituted a health record previously unsurpassed. The 1925 death rate of 11.9 fell below the 1924 rate of 12.0, the lowest previous rate. The provisional infant mortality rate was 68 as compared with 69.6. No rate previous to 1924 had been below 80. Only 5 deaths were recorded from diphtheria and the rate was but 2.6. The 1924 rate was 9.0. For the fourth time in 26 years there was no death from measles, and for the second time no deaths from scarlet fever. This is the 26th year without a smallpox death. An epidemic of whooping cough took a toll of 8.4 per 100,000 population, the highest rate since 1921. The tuberculosis death rate was 44.0 in 1925, tying the 1924 rate. The 1920 rate was 90. Heart disease led the causes of death and cancer came second. For years, the death rate from the latter disease has been increasing and the 1925 rate (120.1) is by far the highest on record. Pneumonia had a death rate of 115.4 in 1925, as compared with 103.2 in 1923; as a result it was third in the list as a cause of death, while in 1924 it was fourth.—Syracuse *Weekly Bulletin,* Jan. 2 and Jan. 9, 1926.

Atlanta—There were 241 fewer deaths in Atlanta in 1925 than in 1924, and the 1925 death rate was 15.59 as compared with 18.19 in 1924. This rate is based on an estimated population of 250,000. There were 109 more births in 1925 than in 1924, the number of births in 1925 being 5,144 as compared with 5,035 in 1924. The deaths of infants under one year was 520 in 1925 as compared with 547 in 1924.—*Atlanta Constitution,* Jan. 2, 1926.

San Diego—During 1925, 2,474 live births were registered in San Diego, giving a birth rate of 23.3 as compared with a rate of 23.1 in 1924. The total death rate was 16.7. When non-residents are subtracted the rate becomes 13.2. The 1924 total rate was 17.2. In contrast to the high death rate at all ages the infant mortality rate was favorable indeed, being 54.6 as compared with 54.7 in 1924. The automobile death rate was 40.4 per 100,000 population.—San Diego *Monthly Bulletin,* Dec., 1925.

Boise, Idaho—Boise passed through 1925 with a minimum of disease. Every contagious disease showed a lower total of cases for 1925 than for 1924. There were 42 cases of smallpox in 1925 as compared with 56 for 1924; 5 cases of measles as against 603; 7 cases of diphtheria as against 8 in 1924; 51 cases of scarlet fever; 74 cases of chickenpox; 27 cases of whooping cough and 6 cases of typhoid fever. Deaths numbered 295 and births 469 for 1925.—*Idaho Statesman,* Jan. 3, 1926.

Fifty-two weeks of 1925, Cities Reporting to the Weekly Health Index—The death rate of 69 large cities of the United States was 12.6 for the 52 weeks in 1925 as compared with 12.5 for the calendar year 1924, and ranged from 7.6 in Flint to 19.8 in Memphis. The death rate increased in 1925 over 1924 in 37 cities, decreased in 27 and did not change in 5. The infant mortality during these 52 weeks in 64 cities was 70 as compared with 72 for the year 1924. Wilmington showed the highest rate in 1925, 91, and Seattle the lowest, 40. In 1924 the range was from 94 in Kansas City, Kans., to 46 in Seattle. Forty-two cities had a lower

infant mortality rate in 1925 as compared with 1924, 18 cities had a higher rate and 4 cities had the same rate.—Department of Commerce, Washington, D. C.

Deaths of Physicians in 1925—The number of physicians estimated to have died in 1925 was 2,532. With a total of 147,010 physicians in the United States, according to the *American Medical Directory*, the number of deaths is equivalent to an annual death rate of 17.22, a slight decrease over last year. The average annual death rate for physicians for the last 24 years is 17.08. The age at death of 2,448 physicians whose age was stated varied from 25 to 107 years. The 10-year age group having the greatest number of deaths was that between 61 and 70, there being 665 deaths. The largest number of deaths occurred at ages 66 and 67, the number dying at each of those ages being 79. Among 2,420 deaths for which causes were given, diseases of the circulatory system accounted for 872. Of these, heart disease caused 559. Cerebral hemorrhage was specified as the cause of 233 deaths and was the second most frequent cause of death. Pneumonia deaths claimed 222 and influenza 26. Diseases of the genitourinary system caused the death of 227 physicians of which number 161 were due to nephritis. Thirty-three deaths were due to appendicitis. Among the so-called general diseases, cancer accounted for 118 deaths. Tuberculosis was the second most frequent cause of death under this classification with 52 deaths. Two hundred and thirty deaths were ascribed to senility, each of the decedents being more than 70 years of age, with no other cause stated.—*Jour. A. M. A.*, 86:118–119 (Jan. 9), 1926.

Decline in Typhoid Fever in North Carolina—In the past 11 years the death rate from typhoid fever in North Carolina has been reduced by 72 per cent. In 1914 the death rate from this disease was 35.8 per 100,000 of population as compared with 15.4 for the U. S. Registration Area. The only states showing a higher rate were Kentucky and South Carolina. Beginning with 1915, typhoid inoculations were made very extensively in a number of counties, some of these having such campaigns every summer from 1915 to 1925, others 5 or 6 campaigns, and 12 none at all. The number of counties ranged from 14 in 1918 to 57 in 1921. The results obtained are seen by the 1924 typhoid fever death rate of 9.9 as compared with 35.8 in 1914. If the same death rate had prevailed in 1924 as prevailed in 1914, 967 citizens would have succumbed to the disease in 1924 instead of 270 who actually died. The 12 counties which did not have campaigns during this period showed a decrease in the death rate during 1918 to 1922 from 13.8 to 9.9, or 28 per cent. Twelve counties which carried on intensive anti-typhoid fever campaigns showed a decrease of 67 per cent in this period, from 26.5 to 8.8. The decrease in the death rate in the state was from 22.2 to 9.9, or 55 per cent.—*North Carolina Health Bull.*, 41:7–11 (Jan.), 1926.

Scottish Vital Statistics: 3rd Quarter, 1925—The more outstanding features of the vital statistics in Scotland for the quarter ending September 30 are a birth rate of 20.8 per 1,000, a marriage rate of 7.4 and a death rate of 10.9. The birth rate is low, being 0.6 less than that of the 3rd quarter of last year and 1.3 less than the mean of those of the 3rd quarters of the preceding 10 years. It is the lowest birth rate found in all 3rd quarters, with the exception of those of the 2 years 1917 and 1918. The marriage rate is also low. The death rate, though not a minimum for the 3rd quarter, is low. It is 0.3 less than that of the 3rd quarter of last year, and 0.7 less than the mean of those of the 3rd quarters of the preceding 10 years. The only previous 3rd quarterly death rates which were lower, were those of 1922 and 1923, which were 10.7. The infant mortality rate of the quarter is 73 per 1,000 births. The rate is 8 less than that of the previous quarter and 5 less than the mean of the corresponding rates of the 3rd quarters of the 10 preceding years, but is 4 more than in the 3rd quarter of last year. The death rates from all forms of tuberculosis and from tuberculosis of the respiratory system are 95 and 63 per 100,000 respectively, each being the smallest such rate occurring in any 3rd quarter since the year 1855. The death rate from malignant disease is 137 per 100,000. It is 2 more than in the previous quarter and 5 more than in the 3rd quarter of last year.—*Med. Off.*, 34:274 (Dec. 19), 1925.

Vital Statistics in Glasgow, 1925—The death rate in Glasgow for 1925 was 14.0 which was decidedly lower than the 1924 rate of 15.4 but higher than the 1923 rate of 13.7. The severe wintry conditions and fog in the last part of 1925 increased the number of deaths from respiratory disease considerably. The

death rates of the first three quarters of the year, however, were lower than those of 1923. Enteric fever had much the same incidence as the preceding year, the number of cases reported being under 100. There were no cases of typhus fever or smallpox. The 1925 death rates from scarlet fever, diphtheria, measles and whooping cough were lower than those for 1924. Pulmonary tuberculosis had the lowest rate ever recorded, 92.1 per 100,000, as compared with 100.6 in 1924. Pneumonia and other respiratory diseases also showed a decrease from 317.7 in 1924 to 253.0 in 1925. The infant mortality rate was 100, as compared with 117 for 1924, and the birth rate was 23.5, the same as the preceding year.—*Glasgow Health Bull.*, 2:4 (Dec.), 1925.

Contagious Diseases in Switzerland—There was a decided decrease in the common contagious diseases in Switzerland in 1924 as compared with 1923. This is most evident in diphtheria. There were 8,456 cases in 1920, 3,297 in 1923 and 2,656 in 1924. The same decrease has been noted in other countries and is the consequence of the periodic oscillations in the frequency of diphtheria. Scarlet fever has been decreasing for the last few years (3,939 cases in 1920, 2,272 in 1923), but in 1924 a slight recrudescence occurred, the number of cases being 2,351. This was especially due to epidemics in the cantons of Vaud and Zurich. In many cases the disease assumed a severe type, an unusual thing in Switzerland. Measles also has been on the decline but oscillations are characteristic of this disease. Typhoid, which has always been uncommon in Switzerland, reached 263 cases in 1922, and 340 in 1923. In 1924, however, only 259 cases were recorded, so that Switzerland still has the fewest cases of this disease. Contagious affections of the nervous system—epidemic encephalitis, epidemic cerebrospinal meningitis, and acute anterior poliomyelitis—decreased in frequency in 1924.—*Jour. A. M. A.*, 86:289 (Jan. 23), 1926.

Diphtheria in Certain Large Cities of Europe in 1924—The diphtheria death rates in the large cities of Great Britain were on the whole very similar to those observed in the large cities of the United States for the same year. The range, however, was somewhat greater (in the United States, from 1.6 to 23.0; in Great Britain from 0.0 to 25.7). A larger proportion of the British cities had a rate of under 10 (73 per cent as compared with 54 per cent of the cities of the United States). The Scottish cities, Glasgow, Edinburgh and Dundee, all report high rates; that of Aberdeen is relatively low. The average death rate from diphtheria in the Scottish cities for the pre-antitoxin period 1858–1895 was much higher than that of most English towns. Manchester had a death rate 8 times that of Birmingham, and London had a rate almost exactly like that of New York. There is no obvious relation between the degree of industrialization of a city and its diphtheria death rate.

In Germany the range for the 37 cities is from 0.8 (Lubeck) to 19.5 (Mannheim). Berlin and Munich have very much lower death rates than either London or New York (Berlin, 2.9; Munich, 5.7; New York, 11.9; and London 12.3). It might have been supposed that climatic conditions in Germany would make for a somewhat higher rate than in England, but 59 per cent of the German cities had rates of 5.0 and over, and 60 per cent of the British cities.

The cities in France make a particularly good showing in diphtheria death rates, only 1 having a death rate above 10, and 1 large city (Toulouse) reporting no deaths from this infection. Paris, where diphtheria seems to have been about the same as in London during the pre-antitoxin years, had a rate of 5.4 in 1924, less than half that in New York or London but nearly double that in Berlin.

Of the other European cities, Geneva is the only one on the honor roll with no deaths from diphtheria. For the most part, even in northern Europe, diphtheria death rates in 1924 were very low. It is a little surprising to find that Rome has a higher diphtheria mortality than the cities of Holland, Belgium, Norway and Sweden.—*Jour. A. M. A.*, 86:194 (Jan. 16), 1926.

Public Health in Tanganyika—Tanganyika consists of a portion of the former colony of German East Africa. The population according to the census of 1921 comprised 2,447 Europeans, 9,411 British Indians, about 5,500 other non-natives and 4,107,000 natives. There were no serious outbreaks of dangerous infectious diseases during 1924. A few cases of plague occurred in the endemic areas in Dodoma and Mwanza districts, and in the Mbulu subdistrict. The decrease in the incidence of smallpox during 1921–1923 was still more marked last year; 30 cases were notified with 12 deaths; 104,000 vaccinations were performed. Influenza caused 38 deaths. The treatment of venereal

disease and yaws has been largely extended by the use of soluble salts of bismuth with most gratifying results. The climate of the territory varies greatly according to the height above sea level. In the warm and damp coast region conditions are tropical; in the hot and moderately dry zone between the coast and the central plateau there is low humidity and a lower temperature. In the hot and dry zone of the central plateau the humidity is low, with a high but variable temperature. This zone is not so trying for the Europeans. In the semi-temperate regions around the mountain slopes, the weather is bracing and is the only healthy one for Europeans.—*Lancet*, 1:59 (Jan. 2), 1926.

Infant Mortality in Kimberley, South Africa—The infant mortality in Kimberley for the year ending June 30, 1925, was most unsatisfactory. In urban areas the European rate was 89.3 as compared with 17.8 in the rural; but the colored infant mortality was 194.1 in the urban areas and 166.1 in the rural. Conditions are still worse in the native population, the figures being 330.9 in the urban districts and 298.1 in the rural. The very difficult economic conditions in Kimberley during the year prevented much attention being paid to maternity and child welfare work. The birth rate in the urban area was 22.4 in the case of Europeans, 41.0 for the colored and 22.0 for pure natives. Plague broke out in November, 1924, and between then and June there were 8 cases with 5 deaths.—*Brit. M. J.*, 2:1087–1088 (Dec. 5), 1925.

Cancer and Race—In Nova Scotia there are several counties in which certain racial elements largely predominate. In Pictou County 70 per cent are Scottish, in Richmond 65 per cent are French Canadian, in Lunenburg 60 per cent are German, and in Shelburne 60 to 65 per cent are English. It was thought that from the cancer data of these counties some deductions might be made respecting cancer incidence as affected by race. In Pictou County the average age of the residents who died from cancer was greater throughout the period 1908–9 to 1917–18, than the average age of the cancer decedents in the province as a whole. During this period, there was a smaller number of other deaths to each cancer death in Pictou County than in the province as a whole. In other words, there were proportionally more cancer deaths. In Richmond County there is nothing significant about the line indicating the average ages of cancer deaths, the line conforming in a general way with that of the province. This county has one of the highest death rates, infant mortality and tuberculosis death rates of all counties in Nova Scotia. The average age at death may be assumed to be low since many of its people die of diseases mainly affecting the lower age group. There should be, therefore, a lower cancer death ratio than in the province as a whole and this is true. In the other counties nothing significant is seen. The graphs appear to show a reaction to cancer among the Scottish population which is not seen in other racial stocks. It is difficult to arrive at definite conclusions owing to the relatively small populations and deaths.—A. C. Jost and Mary A. Ross, *Canad. M. A. J.*, 16:30–31 (Jan.), 1926.

Public Health in New Zealand, 1924—The 1924 health experience of New Zealand showed a death rate of 8.29 per 1,000, an infant mortality rate of 40.2 per 1,000 births and a death rate from tuberculosis of 56.7 per 100,000. All constitute record figures. Certainly at the moment it can be said that the New Zealander is nearer the attainment of perfect health than the inhabitant of any other country. In common with other parts of the world, however, New Zealand does not occupy a very enviable position in regard to its maternal mortality rate, which was 5.0 in 1924. This is a slight decrease over the 1923 rate of 5.11 and compares favorably with the 1923 rate of the United States Birth Registration Area of 6.8, but compares most unfavorably with the 1922 rate in England and Wales (3.8) and with the 1921 rate in Denmark, 2.0, as well as the rates of many other countries. While the total infant mortality under 1 year is so favorable, 40.2, the mortality under 1 month is still very slow in reacting to the administrative measures which have been so successful at later months. There was a substantial decrease, however, in the 1924 rate of 24.0 per 1,000 births over the 1923 rate of 29.1, while the infant mortality rate of one month and under 12 months increased slightly over the 1922 and 1923 rate of 14.7 to 16.3. An epidemic of infantile paralysis beginning in the latter part of 1924, after 8 years of almost immunity, took a toll of 166 deaths. The largest number of annual deaths in 1912–1924 preceding this outbreak occurred in 1916, 123.—*Report of Director General of Health*, New Zealand, year ended March 31, 1925.

INDUSTRIAL HYGIENE

DR. EMERY R. HAYHURST *

Sickness Among 133,000 Industrial Employes—Although statistics of sickness incidence based upon the reports of industrial mutual benefit associations of cases causing disability for 8 consecutive days or longer are understatements of the amount of serious illness actually occurring, on account of the common practice of refusing cash benefits for the venereal diseases and for certain other causes of disability, they do afford some knowledge of the relative frequency of different diseases in a sample of the industrial population of the country.

Influenza and grippe were not so prevalent in 1924 as in either 1922 or 1923, but still remained the leading cause of disability lasting 8 days or longer.

Non-industrial accidents were the second most frequent cause in each of the last 3 years, and the rate appears to be steadily increasing.

Respiratory diseases accounted for 47 per cent of all the cases of sickness reported during the last 5 years.

Less disability was reported in January, February, and March, 1924, than in the same months of each of the 4 preceding years.

The frequency of 8 days' or longer disabilities was 44 per cent higher among female than among male industrial employes, although the comparison included only those diseases which are common to both sexes.

The men in the establishment which had the highest sickness rate for the 3 years ending December 31, 1924, experienced nearly 3½ times as many cases as the men in the plant which had the lowest illness rate.

There was appreciably more sickness reported among men employed in public utilities than in iron and steel manufacturing and in a group of miscellaneous industries; and the frequency of certain diseases varied considerably according to industry. In iron and steel manufacturing there were relatively few diseases of the nervous system and of the digestive system reported, and the incidence rate for bronchitis and for influenza and grippe was low. On the other hand, a higher rate was found for certain epidemic and infectious diseases such as smallpox, typhoid fever, and malaria, and the pneumonia rate among iron and steel workers was well above its frequency in the other industries included in the study.

Sickness severity rates for the year 1924 under three different benefit periods indicate that certain disease groups, such as diseases of the nervous system, of the circulatory system, and of the genitourinary system, are much more important from the standpoint of the amount of time lost from work than from the standpoint of their frequency of occurrence. "Influenza and grippe," however, are important from both points of view. No general tendency toward longer incapacitation appears to be in evidence under longer benefit periods.—D. K. Brundage et al, *Pub. Health Rep.*, 41, 4:113–131 (Jan. 22), 1926.

Sodium Thiosulphate in Treatment of Metallic Intoxication—Sodium thiosulphate has been found efficacious in the treatment of arsphenamin dermatitis and jaundice, and in acute arsenical and mercurial poisoning. The treatment increases the excretion of arsenic and hastens the restoration of the kidneys to normal. Saline solution is recommended as the solvent when sodium thiosulphate is given by mouth.—H. A. Kuhn and H. H. Reese, *Jour. A. M. A.*, 85, 23:1804 (Dec. 5), 1925.

Sodium Thiosulphate in Mercurial Poisoning—In spite of early and repeated use of the sodium thiosulphate, the course of the poisoning seemed entirely unaffected. The average duration of life in the 5 treated dogs was 4.75 days, as compared with a duration of 4.6 days for the series of controls run earlier.

One can scarcely escape the conclusion, therefore, that sodium thiosulphate is of no value as an antidote for the mercury that has

* The editor of this Section will gladly receive contributions from members. Please address all communications to Hartman-Ohio Bldg., Columbus, O.

gained entrance into the circulation, because in these experiments the antidote was given with much less delay than would be practicable clinically, and nevertheless was entirely ineffective either to save the animals or even to delay the occurrence of death to any significant degree.—C. C. Haskell, W. C. Henderson and J. R. Hamilton, *Jour. A. M. A.*, 85, 23:1808 (Dec. 5), 1925.

The Treatment of Industrial Burns—Burns may be caused by moist heat, dry heat, chemicals, electricity, and by radio-active substances. Electrical burns are (1) those from flashes which are usually of first degree and involve only the exposed parts of the body, (2) those usually less extensive but more serious due to the passage of the current through the body, when there is a burn produced at both the point of entrance and at point of exit of the current, so that the action is partly electrolytic and partly due to heat. Classification by depth includes first degree, second degree and third degree (as usual).

The commonest complications of burns are infection, kidney inflammation, suppression of the urine, toxemia, and contractures. The prevention of contractures lies in the prevention of infection, splinting of the parts where possible, maintenance of slight tension—as of the structures about the neck—early passive motion in the neighborhood of joints, healing as promptly as possible, and the use of gentle massage as soon as the new epidermis will permit.

Toxemia is shown by high temperature, rapid heart action, nausea, vomiting, and mental disturbances of varying severity. Three major theories have been presented regarding toxemia: (1) interference with the normal functions of the skin; (2) changes in the blood; and (3) absorption of some toxic substance from the site of the burn. The last theory is the one generally held by surgeons. Therefore the rational method would seem to be to prevent the absorption of toxic products as by the coagulation of tissue devitalized by the burn. Tannic acid applied in 2½ per cent strength appears to do this through its astringent action. Upon removal of the tannic acid compress, one sees a dry, slightly darkened surface which remains slightly adherent to the underlying tissues and prevents the loss of body fluids while acting as a natural protective dressing. The patient is first given a relatively large hypodermic dose of morphine sulphate (for an average adult ¼ grain) when first seen. Blisters are opened, dry sterile gauze applied and held in place by a sterile bandage. This is then kept saturated with the tannic acid solution. In large burned areas, 5 per cent solution has been used to obtain more immediate coagulation. At the end of 24 hours, the burned area has assumed a light brown color when all dressings are removed. If the surface is still red and moist, the tannic acid compresses are continued until there is coagulation. The burn is thereafter exposed to the air but is carefully protected from mechanical injury, chilling, and bacterial invasion by a cradle draped with sterile linen. About the eyes, face, and also in minor burns, 5 per cent tannic acid in lanolin and vasoline has been used. Fluids are forced into the body energetically by all avenues.

By the above means there occurs (1) lessened toxemia, (2) relief of pain, (3) marked limitation of secondary infection, and (4) scar tissue formation has been lessened.—E. C. Davidson (Henry Ford Hospital, Detroit), *National Safety News*, XIII, 2:33–34 (Feb.), 1926.

Occupational Diseases and the Physician—In more than one year's observations of the occupational disease calendar in New York City, only a very small number of diseases are compensable under the act, and 5 per cent would be a generous estimate. Also, of the claims presented only about 40 per cent were allowed. There are many reasons for this existing condition, among them the physicians' lack of knowledge of the Compensation Law, need of knowledge of the various types of industry, of the harmful action of many substances used in manufacture, in some cases unfamiliarity with occupational diseases and their causes, symptoms and prognosis. Despite the fact that the Department of Labor has sent out much literature, and the facilities of the bureau are always available, the response has been disappointing, although it is slowly improving. The *Ready Reference Manual of Industrial Diseases* and the *Industrial Hygiene Bulletin* have been widely distributed and are always available. Where a physician is in doubt, if he will report to the department an investigation will be made and the result placed at his disposal. In addition, he will be made aware as to whether or not it is a compensable disease. The patient who is injured or suffers from illness as a result of his occupation should be compensated, and likewise the physician who

cares for him. But these results can only be obtained by attention to the rules. "Surely the practicing physician realizes that the majority of patients come from the ranks of the army of workers, and that a knowledge of the industries and occupations is necessary for a clearer understanding or diagnosis of the ailments of workers."—C. T. Graham-Rogers, *Indus. Hyg. Bull.*, New York State Dept. of Labor (Albany), 2, 7:25 (Jan.), 1926.

Warfare Gases—This bulletin discusses the history, description, medical aspects, and after effects of warfare gases with a brief bibliography, illustrations, and some tables, comprising a 115 page report. The classification of chemical agents used, the technical uses of each, those which are persistent and those non-persistent, as well as the question of smoke, inflammable materials and oils are discussed. The nature of protection against gases occupies one chapter of 7 pages with illustrations. A brief chapter is given to lachrymator gases. Gases are then classified according to their physiological action with discussion of their pathological effects, animal experimentation (very briefly), the vesicants such as mustard gas, and the questions of white and red phosphorus. One chapter is devoted to organization for gas casualties. Here a few terse rules are given concerning emergency procedures and general precautions. The last chapter discusses the after effects of warfare gases, pointing out that about 50 per cent appear normal, 30 per cent fall into the bronchitic group, a third group suffers from emphysema. The board has found that gas victims, irrespective of the type of gas and severity of the attack, showed no marked predisposition toward active pulmonary tuberculosis nor toward the reactivation of healed lesions.

[A number of the points discussed under carbon monoxide, with which the author acknowledges the American army had little experience, due probably to fighting mostly in the open, so that the German observations have been taken, would not be agreed to by industrial hygienists who have familiarity with this gas; *e.g.*, that natural gas generally contains from 12 to 15 per cent of CO (page 40); that patients suffering from CO poisoning, as a rule are pallid with red blotches on the skin due to areas of distended blood vessels; fever is quite common; white cells increase to 30,000–50,000; pneumonia begins with a severe hemorrhage from the lungs; few changes are noted in other organs than the lungs and brain. The test for carbon monoxide in which a purple hue of blood diluted in water depicts CO would be questioned. There is also no mention of the newer tests or of methods of treating the condition with a mixture of CO_2 in oxygen.]—*Army Med. Bull.*, No. 16, 1925.

Titles of Interest in the 1925 Proceedings of the National Safety Council, Part I—

The Responsibility of the Management for the Effect of Focal Infection (Especially Dental) on the Life, Health and Efficiency of the Employe, Weston A. Price, p. 59.

Syphilis as a Factor in Industrial Surgery, Dr. F. G. Barr, p. 79.

Third Progress Report of the Sub-Committee on Benzol of the Committee on Industrial Poisons, National Safety Council, Chemical Section, p. 281.

The Use of Carbon-Tetrachloride vs. Carbon-Bisulphide in Industry, Emery R. Hayhurst, M.D., p. 294.

What the Chemical Industry of the Country Means to the Chemical Warfare Service, Major General Amos A. Fries, p. 306.

Report of Industrial Poisons Committee, S. E. Whiting, p. 329.

My Experience with Certain Industrial Poisons, William F. Boos, p. 336.

Static Electricity in Chemical and Other Industrial Plants, C. C. Perry, p. 345.

The First Year of Utah's Drastic Coal Mine Regulations, Daniel Harrington, p. 596.

Central Mine Rescue Stations, K. T. Sparks, p. 603.

The Value of Mine Rescue Maneuvers, F. C. Gregory, p. 613.

Ventilation Practice in the Mines of the Union Pacific Coal Company in Wyoming, A. W. Dickinson, p. 634.

The Heating of Rooms—This 48-page bulletin is filled with succinct observations of a scientific order. The introduction takes up body comfort in relation to environment—radiation, convection, evaporation, and other factors. The second chapter considers experimental determinations of the heat production of man, with basal metabolism, methods of measurement, effects of muscular and mental work, and the balance between energy derived from food and the heat output. Chapter 3 presents the experimental work done in a room 17½ x 15½ x 14½ ft. with air heating provided by (1) hot water radiators, and (2) luminous flame gas burners, and radiation provided by (a) a modern gas fire placed under the flue, (b) an electric heater, and (c) a Bunsen flame gas heater playing upon refractory material [probably similar to our "radiant gas heater"]. Exact methods of measurement were used and warmth comfort determined with air heating, in conditions of

high draught and with radiant heat. Chapter 4 gives an analysis of results. Many terse observations occur such as "a draught of 2 ft. per second over the entire body of an observer resulted in an increase of 4° in the air temperature being required for comfort." "The most comfortable conditions corresponded with an air temperature of about 55° F. in conjunction with the requisite intensity of radiation for warmth. . . . Below 51° F. or 52° F., draughts or the effects of low air temperature became very perceptible, and the typical 'scorched on one side, chilly on the other' sensations associated with open fire heating in cold weather began to be felt." Chapter 5 gives a comparison of costs of the different methods of heating. For *continuous heating* the cheapest means of providing radiation is an open fire of low temperature coke; open coal fires are slightly more expensive; gas fires cost about 2½ times as much as coal, and electric heaters cost about 5½ times as much as coal. For *intermittent heating*, however, gas or electric heating becomes little more than ½ to ¼ the cost of coal. Hot water radiators proved the cheapest method of continuous heating for a 1000 cu. ft. room on the same basis of efficiency where coke or coal fire proved cheapest for a 4000 cu. ft. room. As the size of the room increases open fires (coke, coal or gas) are cheapest. Where persons have to be evenly distributed over the room as in an office or school and large rooms, air heating must be substituted for radiation heating. Insulation of rooms, double glazing of windows, etc., are of the greatest importance in the avoidance of heat losses.—Margaret Fishenden and R. E. Willgress with acknowledgments to Leonard Hill (British), Fuel Research Board, Adastral House, Kingsway, London, W. C. 2. *Tech. Paper No. 12*, 1925. Price 1s. net.

CHILD HYGIENE

MERRILL E. CHAMPION, M.D.

Does the Long School Day Menace Child Health?—The writer, a well-known pediatrician, looks for the cause of malnutrition so prevalent among the children of his practice. In its correction he points out as a necessity the removal of physical defects, and even more, the removal of causative faulty health habits—"The faultiest of all faulty habits indulged in by many children—is nothing more nor less than undue indulgence in school attendance."

In his own practice, shortening the school hours in individual cases resulted in more than a gain in health. The children who previously had lacked interest in their studies, had been dropping behind in their grades or had been difficult from a disciplinary standpoint began to show new interest in their studies. Instead of dropping behind in their classes they did better work, educationally, as a result of the shorter hours.

Experience has proved that in the lower grades the child's capacity for learning is exhausted after 3 hours of work or less. Prolonged urging to imbibe at the fount of knowledge after this point is reached is no more effectual than attempts to persuade the horse at the watering trough to partake of the contents when he is not so minded.

"What is the reason for the retention of the long school day? Is it mere intellectual inertia, or is there some sound scholastic reason? . . . If it is doing harm, and if the short day will right that wrong and accomplish what we send our children to school for, let us have it, as we want every other good thing for that best of American institutions, the American free public school."—F. H. Richardson, M.D., *Kindergarten and First Grade Magazine*, Jan., 1926.

Simple Goitre in Children—The author takes exception to the commonly accepted causes of goitre. She realizes that it is heresy to question the lack of sufficient iodine theory; nevertheless she does so, listing various phenomena which undermine this theory. She believes that iodine when used in goitre of not too long standing, and in the absence of other pathological conditions, will often reduce the hypoplasia, for iodine reinforces the gland which owing to some interference is no longer able to carry on its function of assimilating

iodine. Lack of iodine is not the cause *per se* but the addition of iodine is a remedy.

She then considers various agents which would interfere with the proper function of the thyroid, such as infection (bacterial, toxic) or intestinal toxemia, and in this connection considers the value of the iodine to be due to its disinfecting quality.

She objects to the assumption that slight enlargement of the thyroid at puberty is physiological. Our unfortunate industrial, educational, and social systems overstimulate and interfere with metabolism. This brings on a toxic state which in turn irritates the thyroid.

She concludes the article by calling attention to the slow, insidious growth of goitre, to its dangers and to its rapid increase.—Anna G. Wilner, M.D., New York, *M. Womans J.*, Feb., 1926.

Light and the Antirachitic Factor—A comparison of clinical experiences and observations of the action of light on different diseases with corresponding observations from the laboratory of the effect of light on some experimentally produced diseases, especially in relation to the so-called antirachitic vitamin, leads to the following conclusions:

1. The phosphorus content of the blood is decreased in florid rickets and an increase in it is the first sign of cure.

2. Sunlight, the carbon arc light and the mercury quartz light each exert a strong protective action against rickets even if they are allowed to act for only a few minutes daily. The antirachitic effect is due entirely to ultra-violet ray.

3. Beside the ultra-violet light and cod liver oil some other substances, such as egg yolk, extract of green leaves and a few fats, have similar antirachitic effect.

4. Because some children have rickets and others escape, although they have lived under similar conditions and received the same food, the indication would be that the cause of rickets must be sought in the individual himself.

5. Light has the same curative effect on tetany as on rickets. It is more quickly cured than rickets because of the fact that soft bone tissue requires more time to calcify.

6. In experimenting with diabetes it was found that ultra-violet light apparently has a stimulating influence on the internal secretion of the pancreas when this function is different.

7. Light has a favorable influence in blood production in simple anemia. It results in the rise of hemoglobin, particularly in the number of red corpuscles and, therefore, is beneficial in anemia.

8. Light, and particularly ultra-violet rays, has a stimulating effect on organisms, which chiefly benefits those functions that are depressed. The curative effect of light on rickets and tetany can be explained by such a stimulating effect. It is certain, however, that cod liver oil has the same healing action on rickets and tetany as light has, although the former in the quantities that can be given to children acts more slowly and less surely than light.

As this effect is not due to the vitamin A substance, there must be a stimulating factor in cod liver oil similar to that in ultra-violet rays in addition to the vitamin A substance. This is easily understood since it has been shown by animal experiments that fat and other food materials which act without effect on rickets can be rendered active for experimental rickets merely by exposure to ultra-violet light.

9. This proves that the non-specific stimulating factor must be ultra-violet rays.

10. Evidently the hypothetic antirachitic vitamin does not exist.—C. E. Bloch, M.D., and Frans Faber, M.D., Copenhagen, Denmark, *Am. J. Dis. Child.*, Oct., 1925.

Rickets: Ultra-Violet Light and Milk—The experimenters based their work on the hypothesis that ultra-violet treatment of the mother might cause the antirachitic substance to be increased in her milk.

They took cows nearly the same age and calving date and receiving like treatment as to food, temperature, etc., and gave 2 of them regular ultra-violet ray treatment. Milk from these 2 cows was fed to a group of chickens showing rickets both chemically and by X-ray. At the same time milk from cows not so treated was fed to a second group of chickens also showing the same degree of rickets. At the end of 50 days the rachitic chickens fed with the milk from cows treated with ultra-violet had recovered completely, but those fed with milk from the untreated cows had progressed steadily toward an extreme condition of rickets.

The authors feel that while this "antirachitic milk" is an agent worth considering in the treatment of rickets, it is not so immediately effective as cod liver oil or direct exposure to ultra-violet light.

They also suggest that the high incidence of rickets in babies during the late winter months is due to mothers not receiving enough ultra-violet light either during pregnancy or while lactating and, therefore, exposure to direct sunlight is of genuine benefit in this connection.

Also cow's milk that is produced especially for baby feeding should be from animals which have access to ultra-violet light either from the sun or some other source.—J. W. Gowen et al., *Science*, Jan. 22, 1926, p. 97.

Insulin in Vomiting of Pregnancy and in Eclampsia—"Deaths from pernicious vomiting and eclampsia may soon be deductible from the total of maternal mortality" is the encouraging conclusion reached by an editorial writer in the *Journal of the A. M. A.*

The method by which this desired end is to be accomplished is that of Thalhimer who has extended his treatment of acidosis to include toxemic vomiting of pregnancy. The method consists in "intravenous administration of about 1,000 c.c. of warm 10 per cent glucose solution at the rate of from 200 to 300 c.c. an hour. In addition, 15 minutes after the injection is started 10 insulin units is given hypodermically. More insulin is given at intervals until 30 units to 1,000 c.c. of glucose solution has been given. . . . More recently, in a preliminary report it is shown that eclampsia may be treated by a combination of insulin and glucose together with a modified Stroganoff treatment. In the event of coma or semi-consciousness following a convulsion, Stander and Duncan begin the modified Stroganoff treatment as soon as the patient is admitted, and immediately determine the sugar content and carbon dioxide combining power of the blood. If the blood sugar is unduly increased and the carbon dioxide combining power unduly decreased, from 15 to 25 units of insulin is given."—*Jour. A. M. A.*, Feb. 20, 1926.

Bovine Tuberculosis—An editorial on recent research by Calmette and others summarizes the conclusion reached thus: "that there exists only one race of tubercle bacilli in mammals (Bacillus tuberculosis-mammalium), and that its adaptation to the body of man or of cattle has brought about its separation, not absolute, however, into two types of bacilli presenting certain differential characteristics, the human type and the bovine type."

Quoting the work of Park and Krumwiede, it appears that "all pulmonary tuberculosis is caused by the human type of bacillus, while about one-tenth of the tuberculosis of bones, joints and lymph nodes in adults and one-fourth of tuberculosis of this type in children is due to bovine bacillus."

It is stated that from 6 to 10 per cent of deaths from tuberculosis under the age of 5 years are to be attributed to the activities of the bovine type of bacillus. These deaths result chiefly from miliary tuberculosis and tubercular meningitis. "Pulmonary tuberculosis due to the human type, and the so-called surgical tuberculosis due to the bovine type of bacillus, are seldom found together."

Pasteurization, if properly done, effectively destroys the bacilli, that is, "if the milk is brought to a temperature of 62.5° C. and maintained at that temperature for a half hour."

The process of condemnation and slaughter of infected cattle is said by various lifelong students of tuberculosis to be impossible of attainment owing to the tremendous waste involved.

It is suggested now that the process of racial immunization through which man has gone may eventually result in a race of cattle possessing a high degree of immunity to bovine tuberculosis. There is no question that infection of a susceptible animal heightens its resistance to reinfection. Results already attained seem to be encouraging and "the scientific standing of several of the proponents warrants serious attention."—*Jour. A. M. A.*, Feb. 20, 1926, p. 555.

Control of Measles—While it has become common knowledge in medical circles that measles can be prevented by the prophylactic use of convalescent serum, it has apparently remained for the city of Paris to demonstrate a practical method by which the public at large may benefit from this knowledge.

Two centers have recently been established in that city for the collection of serum from convalescents from measles and for its application according to a plan devised by M. Robert Debré, a pupil of Léon Bernard.

Instead of attempting to forestall the attack of measles, M. Debré proposes by injecting the serum at the end of the period of incubation to so modify the infection that prolonged immunity will result from an extremely mild attack of the disease. By methods previously used only a temporary immunity has been conferred. While statistics are not yet available, this method of inducing immunity to measles

appears to have met with marked success in controlling epidemics in institutions and in the families of exposed children.

One important consideration which has gone far toward overcoming difficulties previously considered to be insurmountable is the observation of the fact that serum taken from adults who have had the disease in the remote past may be substituted satisfactorily for the serum of recent convalescents, hitherto thought to be necessary to effective prophylaxis.

The Bernard method of inducing immunity to measles has been considered by the Health Committee of the League of Nations to be of sufficient importance to be included in its program of studies.—*Nation's Health*, Feb., 1926.

Poliomyelitis Outbreak in Cortland, New York, Traced to Milk—Six cases of poliomyelitis, developing during the third week of December, 1925, had all consumed milk from the same dealer. Investigation showed no evidence of paralysis or illness among the dairy animals, except that 5 of the 20 cows reacted to the tuberculin test. A 16 year old boy employe who milked half the cows, carried milk to the cooler, and assisted in filling the cans, complained of fever, headache, pain in the back, and some diarrhea on December 7. He continued at work until December 11, when there was definite paralysis of the upper left extremity and right deltoid muscle.

The subsequent cases occurred December 14 (1), 16 (2), 18 (2), and 19 (1). There were no other cases until December 25, when 3 developed, 2 of whom had had contact with the suspected milk.

The cases varied in age from 15 months to 22 years, lived in different sections of the city, and had no known social relations.—*Health Notes*, New York State Dept. of Health, Jan. 18, 1926.

Hygiene of the Heart—Starting with the cheering assurance that "heart disease is preventable in the majority of instances," and that "the great majority of hearts are healthy at the beginning," Dr. William H. Robey leads us on to the striking statement that according to Dr. Haven Emerson "heart disease in a recognizable form interferes with the work, play or comfort of at least 2,000,000 people in this country to-day."

We learn too that the early years are those in which the heart is most likely to become affected. The reason given is that in youth the foci of infection, rheumatism, tonsillitis, decayed teeth, scarlet fever and other infectious diseases are more common. The means of prevention for this condition lies in "cleaner mouths, earlier recognition and prompt treatment of sore throats and greater protection against the so-called infectious diseases of childhood, such as scarlet fever and diphtheria."

It is no longer a debatable fact that rheumatic heart disease is communicable although the specific organism causing acute rheumatism has not yet been identified. "If we investigate the immediate family of a patient with rheumatic heart disease, we shall find that about 15 per cent of the other members, those in close contact, will give definite physical evidence of attacks of acute rheumatism, tonsillitis or St. Vitus' dance, with or without heart affections. This means that the person sick with rheumatic fever should not come in contact with other persons in the family, especially the younger members. It also means that when a case of rheumatic fever, tonsillitis, sore throat or St. Vitus' dance occurs in a household, the other members of the family should be carefully examined for evidence of causes of heart disease as well as of the disease itself."—*Hygeia*, Feb., 1926.

Hilum Tuberculosis—At a meeting of the American Sanatorium Association in December, 1922, a committee headed by Dr. H. D. Chadwick defined the term "hilum tuberculosis" and recommended its addition to the present classification. This was accepted by the association at its annual meeting of the current year.

This term as defined by the committee applies to those cases of tuberculosis in children who present the following symptoms and physical signs controlled by the Pirquet reaction and roentgen-ray findings:

Symptoms—Local: Frequent "colds," cough, hoarseness, rarely loss of voice. All may be absent and when present are usually transitory.

Constitutional: Undue fatigue, lassitude, nervous irritability, anorexia, weight normal but more often subnormal; retardation of growth, rarely loss of weight, tendency to profuse perspiration without apparent cause, occasionally brief periods of unexplained elevation of temperature (above 99.6° F., rarely over 100.5° F.), flabby muscles, fatigue posture, phlyctenular disease (keratitis, conjunctivitis), scrofuloderm and lupus.

Physical Signs—Paravertebral dullness; voice and breath sounds normal. Rales are rarely found, and when present are due to causes other than tuberculosis.

Roentgen-Ray Findings — (1) Prominent bronchial trunks with definite beaded appearance or nodular in outline extending from the hilum.

(2) Enlarged lymph nodes, varying in number and density, embedded in the thickened tissue of the hilum.

(3) Diffuse shadows of varying density throughout the hilum. Occasionally there are cloudy masses with irregular outlines projecting into the adjacent tissue, resulting from involvement of the deep parenchyma.

This study is based on 2,285 cases. A reactor group (positive Pirquet reaction) of 1,176 cases is compared with a nonreactor group (negative Pirquet reaction) of 1,109 cases. In the reactor group are 472 boys and 704 girls. In the nonreactor group are 430 boys and 679 girls. The ages are from 6 to 15.

COMMENT:

Tuberculin Reaction—It is found that 29.2 per cent of children between 6 and 15 years react to the tuberculin test. (At 6 years, 2.7 per cent; 7 years, 5.4 per cent; 8 years, 8 per cent; 9 years, 9 per cent; 10 years, 12.4 per cent; 11 years, 13.6 per cent; 12 years, 15.6 per cent.) The first figure, 29.2 per cent, applies to the state-wide examination of 10,648 children. Opinions vary as to the significance of the Pirquet reaction in children over 2 years of age. If it is argued that the nonreactors who have never been infected and therefore have no immunity are in greater danger of a primary infection, this is admitted. One can see no better solution for this than to have the family or school physician, with full appreciation of this fact, guard the children under his care with this point in view.

Symptoms—The first and most important symptom found in this study is underweight. Other symptoms of importance are a tendency to tire easily, nervous irritability, frequent "colds," sweating, night terrors, cough, and hoarseness.

Physical Signs—Interscapular dullness was found in 70 per cent of the hilum and suspicious cases. Rales were found twice as often in the nonreactor group as in the reactor group.

Roentgen-Ray Evidence—The most frequent roentgen-ray finding is a moderately thickened hilum with shadows interpreted as glands (bronchial, mediastinal) within this thickened area.

Diagnosis—The diagnosis of hilum tuberculosis in school children is based on a conservative evaluation of certain symptoms (underweight for age and height being most important), physical signs (relative interscapular dullness) exclusion of other diseases and control by roentgen-ray examination and tuberculin test. By this method, 459 cases out of 10,648, or 5 per cent, were diagnosed hilum tuberculosis. This is in agreement with Planner, who found an exactly similar percentage.—David Zacks, M.D., *Jour. A. M. A.*, Feb. 27, 1926.

Temperature of the Lactating Breast—An interesting experiment is presented in the review of an article entitled "Increases of Temperature of the Lactating Breast" by Karl Heusler (Zentralblatt f. Gynäkologic, Jan. 24, 1925). The author is quoted as saying:

"After discussing the question of whether mothers of to-day are losing their ability to nurse their babies, the author cites the figures compiled by Martin in 1920, which showed that in 1,000 cases only 0.8 per cent were unable to nurse their babies. He states that while there are cases in which an absolute inability to nurse exists, there are many more in which at the beginning, or during the course of lactation, the milk secretion is maintained with difficulty or even suddenly ceases. The question arises whether a true, primary, hypogalactia or agalactia is present on an anatomic physiologic basis, or if from some other cause the breast function has not developed."

The author then goes on to enumerate the numerous factors which may bring about a secondary hypogalactia; poorly developed nipples, cracked nipples, insufficient stimulation on account of harelip or cleft palate, or debility of the infant, etc. He reminds us that it is difficult to decide whether the hypogalactia in a given case is primary or secondary.

Moll found the temperature taken under the secreting breast to be from 0.5° to 0.8° C. higher than in the axilla, while in women who were pregnant, but not lactating, this was not the case, and often the reverse was true. The increased temperature was found to be present even when the breast had been emptied by the nursing of the baby or by manual expression. When the breasts dried up, the difference in temperature gradually disappeared. In cases of hypogalactia in which the temperature of the breast was increased, it was an indication that the breasts were still functioning, and many a supposition of inability to nurse proved false. In women with fatty breasts with a small amount of gland parenchyma, the increase in temperature was not present and all attempts to bring about proper secretion failed.

The author's investigations were made on 176 women of which 86 were nursing their babies during the puerperium; 10 were not nursing during the puerperium because their babies were dead; 50 were healthy women not nursing babies, and 30 were pregnant. Of the first group, all except 1 showed an increased temperature under the breast, while in the group of healthy nonnursing women, all but 2 showed either a lower breast temperature or a breast temperature the same as that in the axilla. In the group of pregnant women an increased breast temperature was present in about one-half the cases during the 8th to 9th month. In the group of 10 mothers whose infants had died and the breasts were not stimulated, the breast temperature was at first higher than the axillary, and gradually fell, until by the 10th day postpartum the breast temperature was lower than the axillary. In the 1 case of the first group in which the breast temperature was lower than the axillary, a primary hypogalactia was proved by the subsequent course of events. The author concludes that an increase of breast temperature over axillary temperature is a simple and accurate prognostic sign as to the functionability of the breasts.—*Am. J. Dis. Child.*, Vol. 30, No. VI (Dec.), 1925. Abstracts from Current Literature, p. 866.

New Hearing Tests—When we read that "a whole school of 1,000 pupils was tested in 3 days recently in New York" we are tempted to read on to discover by what method the long time-consuming processes by which we have been accustomed to test the hearing of school children have been suddenly superseded. We find, in reading on, that it is by a mechanical apparatus capable of testing 100 persons an hour.

Dr. Harvey Fletcher presented this subject before the American Academy of Ophthalmology and Otolaryngology and the audiometer is the instrument by which tests were made.

By its use the personal equation of an examiner is eliminated; the results are much more accurate than those obtained by well-known methods such as the watch or tuning fork; and it furthermore provides a scale by which other methods may be correlated.

Four types of such instruments are called for: (1) for industrial use, (2) for educational classification use, (3) for clinical diagnosis, and (4) for research work.

The simplest type, the one best adapted to school use, is described as "suitable for the rapid survey of industrial or school groups sufficiently accurate for placement purposes or for educational groupings."—*Nation's Health*, Feb., 1926.

EDUCATION AND PUBLICITY

EVART G. ROUTZAHN *

The Associated Press, Better Known as the A P—The Associated Press is a coöperative, non-commercial, news-gathering and news-distributing organization serving approximately 1,200 newspapers of all shades of opinion, party politics, religious affiliations, and including some foreign language newspapers. It has a wire service and a mail service. Only news of great importance is carried on the wire service at any length. The sort of news that social agency publicity representatives are likely to have is much more suitable for distribution through the mail service of the A P. To insure adequate nation-wide distribution the story should be given to the A P from 2 to 3 weeks in advance of the release date; regional or state-wide distribution may be secured by giving copy to the Associated Press a week to 10 days in advance of the release date. Except in news of extraordinary importance 400 to 500 words is considered a maximum length by the editors of the A P service. (It is better not to reach the maximum.) In both its mail and wire services the Associated Press is interested almost exclusively in *news;* it has only a very slight interest in so-called feature stories or human interest stories, though you may get as much human interest as you wish into a story which also has real value as news; editorial

* Please address questions, samples of printed matter, criticism of anything which appears herein, etc., to Evart G. Routzahn, 130 East 22d St., New York City.

comment in any form is absolutely taboo on the Associated Press. Any help which the A P gives to publicity persons is of course given without charge. In return the publicity director should remember that an error in copy given to the A P may result in an error in 1,200 newspapers. Absolute accuracy is therefore imperative.—Louis Resnick. (The above paragraph will be followed by accounts of other news-distributing agencies.)

News Distribution Machinery—Associations, services, syndicates, etc., concerned with the distribution of news and other material which goes to make up a newspaper will be described in a series of tabloid chapters which will appear from time to time in this department. Tell the editor about any of this kind of information you would like to have published. The series opens in this issue with a chapter on the Associated Press, the greatest of the press distribution services.

"Fashions for Flappers"—"The Pennsylvania Tuberculosis Conference was blessed with a real publicity feature—the Fashion Show which is being given before the girls in the schools of Philadelphia and vicinity by the Philadelphia Inter-State Dairy Council, 1211 Arch Street, Philadelphia. Instead of gawky, self-conscious boys and girls disguised as turnips, apples and milk (if possible), there was a fashion show that might have come fresh from Wanamaker's store across the street. Madame Santé, a designer of 'beautiful things that women love to wear,' might have been a real Parisian designer—chic, petite, with a charming French accent—instead of a member of the Dairy Council Staff.

"'We are beginning to realize,' began Madame Santé, 'what an important part health plays in this fashion show we call Life. On the crowded Avenue you meet someone who particularly catches your eye. "Ah! that lady is beautifully dressed," you will say—but is it the dress alone that strikes your fancy? No. On second thought you will find that this lady is clothed in something more than style—she wears a robe of health—a clear skin, bright eyes, grace, poise and a subtle effluence of happiness. And these are the things I want all of you to incorporate into your gowns. Look to Healthland for your inspiration—then, if you wish, turn to Paris for the necessary frills and ruffles.'

"Then there strolled across the stage, one by one, with just the proper rhythm, a half dozen pretty girls (recruited from the high schools) each displaying a new dress model—morning toggery, sport frock, wedding gown, traveling dress, dinner gown, evening gown.

"In her description of each model, Madame Santé subtly drove home the idea that good health habits were necessary if the gown was to have its appropriate setting."—*Survey*, Mar. 15, 1926.

Why Don't You Talk Back?—Methods are proposed in this department which some of you have tried, and found wanting, or have proved to be good. The editor is thoroughly convinced that in expressing his opinions as to what is good and what is bad his judgment is often faulty. Many ideas that are offered on these pages may not be what you need in your work. *Why don't you talk back?*

Free Movies for Good Teeth—Free admission to see a leading motion picture was offered by the State Theatre, Harrisburg, Pennsylvania, "to every child whose name appears on the dental honor roll prior to the appearance of that wonderful educational picture." Tickets were offered also to the "entire schoolroom which is first to register 100 per cent on the honor roll." These offers were made through the two dental hygienists of West Shore District, Cumberland County.

Getting Into the Papers vs. Getting Read—"'Your publicity bulletin affords me weekly entertainment,' writes one health commissioner, 'but why should I clutter up my poor head by trying to master the technic of writing news articles?—the papers here print everything I give them.' As evidence he encloses several clippings, some of which are so indifferently written, one wonders if the public actually reads beyond the first line."—*Health Publicity*, Ohio State Department of Health.

Everybody Happy—"We are not selling 'misery' this year, but 'happiness,'" writes Clarence King of the Bridgeport Financial Federation. "I know of many campaigns that have stressed the happiness of giving, but we are putting all the emphasis, in our campaign, on the happiness resulting from the services rendered by our member agencies."—*Better Times*, Feb. 1, 1926.

DATES AHEAD—MAY, 1926

1—May Day—Child Health Day—American Child Health Association, 370 Seventh Ave., New York, N. Y.
1-8—International Boys' Week—Rotary International, 221 East 20th St., Chicago, Ill.
2-8—National Music Week—National Music Week Committee, 45 West 45th St., New York, N. Y.
9—Mother's Day.
12—Florence Nightingale's birthday.
12—National Hospital Day—American Hospital Association, 22 East Ontario St., Chicago, Ill.
19-20—Pentecost (Hebrew).
24—Empire Day (Canada).
24-June 5—Convention: General Federation of Women's Clubs, Atlantic City, N. J.—Address: 1734 N St., N. W., Washington, D. C.
26-June 2—National Conference of Social Work, Cleveland, Ohio—Address: 25 East 9th St., Cincinnati, Ohio.
—Conferences and other opportunities for publicity workers at same time and place—Address: Committee on Publicity Methods in Social Work, 130 East 22d St., New York, N. Y.
—Meeting at same time and place: American Association of Social Workers, American Association for Organizing Family Social Work, American Association of Hospital Social Workers, American Association for Community Organization, International Association of Policewomen, National Probation Association, and others.
30—Memorial Day.

If You Come to New York—Tell the editor of this department the dates you will be here so that you can be informed of any publicity gatherings that you may attend during your stay.

A Birthday Present—"Dr. H. Longstreet Taylor, president of the Minnesota Public Health Association, offered a free physical examination to every member of the staff of the Minnesota Public Health Association as a Christmas present.

"This is an excellent idea. Why not give your wife, husband, child or other relative the price of a physical examination for a birthday present? It may mean the preservation of their health. Can you offer anything better?"—*Northwestern Health Journal*, St. Paul, Feb., 1926.

TITLES

"When Johnny Breaks His Arm"—*Hygeia*. Nov., 1925.

"Gentlemen, Your Health"—A Florida advertisement.

"Breaking the Bars of Blindness"—*Better Times*. Feb. 1, 1926.

"Duping the Diabetic"—*Hygeia*. Mar., 1926.

"Slenderizing"—Press release of N. C. State Board of Health.

"The Expectant Father"—*Health*, New Haven Department of Health.

"Every Little Cough Has a Meaning All Its Own"; "The Eyes of the Wise"—*Popular Health*. Jan., 1926.

MOTION PICTURES

Propaganda Cinematograph—World's Health, 2 Avenue Velasquez, Paris, France. February, 1926. 10 cents. Describes a new malaria film produced by Netherlands Red Cross, 27, Princessegracht, The Hague, Netherlands.

The Prevention of Human Waste—Presents human heredity and the cost of inherited defect. Eugenics Education Society, 52 Upper Bedford Place, London, W. C. 1, England.

NEW ADDRESSES

American Society for the Control of Cancer, 25 West 43d St., New York.

National Committee for the Prevention of Blindness, Inc., 370 Seventh Ave., New York.

REQUESTS FOR INFORMATION

What to Send to City Council and Board of Health—One Ohio city asked for educational material on the desirability of limiting the local milk supply to tuberculin tested cows. What do you recommend?

Illustrating Effects of Clean and Unclean Handling of Milk—Where can Miss Ella Hidman, 3225 Orchard St., Lincoln, Neb., secure a series of pictures for use in nutrition work at the University of Nebraska? Others wish the same sort of pictures.

"Seven Tons" of Fresh Air Gain—Expressing the results of its fresh air work in terms of tons carried the publicity of the Association for Improving the Condition of the Poor into newspapers all over the country. The newspaper release opened picturesquely, "Seven tons added to the weight of 3,000 boys and girls from the tenement districts at the various summer camps operated by the A. I. C. P."—*Better Times*, Feb. 1, 1926.

LAW AND LEGISLATION

JAMES A. TOBEY, LL.B.

A Study of State Health Administration—Federal health activities and municipal health administration have recently been the subjects of intensive investigations, but no comparative studies of state health administration have been made for over a decade. In 1912 the United States Public Health Service issued a comprehensive bulletin entitled "Organization, Powers, and Duties of Health Authorities," which consisted of a summary of the health provisions of the various state laws. This excellent compilation, though still of some value for reference, is now out of date. In 1914 the American Medical Association published the report of a survey of state public health work, by Dr. Charles V. Chapin. This notable report is now out of print. In 1917 Professor George C. Whipple's book *State Sanitation* appeared, though this was almost entirely an historical account of the development of public health in Massachusetts, which is also, however, one of the most important items in the contemporary history of public health in the United States.

In order to fill in this gap between the studies of federal and municipal health work, the Institute for Government Research of Washington, D. C., is undertaking a comparative study of state health administration. This will be handled from the political science standpoint and will deal with questions of organization, legal authority, and powers, rather than with methods of scientific procedure. The development of state health administration will first be traced; then each state will be described, including such matters as the history and development of state health work, its present organization, personnel, appropriations, powers, duties, and functions; and, finally, the whole situation will be summarized, the various systems compared and discussed, and an endeavor will be made to outline an ideal arrangement from the standpoint of political science. It is estimated that this study will require about a year and it is hoped that it may be ready for publication early in 1927.

Federal Health Correlation—After some delay, due to many factors, the bill for correlation of federal health activities was introduced in the House on the 8th of March by Representative Parker of New York, chairman of the Committee on Interstate and Foreign Commerce.

This bill provides that "whenever the President finds that it will promote greater efficiency in the conduct of the public health activities of the Government, he is authorized, by Executive order, to transfer to the Public Health Service all or any part of any executive agency (other than an agency of the military or naval forces, the War Department, the Navy Department, or the United States Veterans' Bureau) engaged in carrying on a public health activity."

The bill also authorizes the President to direct that scientific personnel of the Public Health Service be assigned to other agencies of the government carrying on public health work, or that such personnel may be detailed, on request to the Surgeon General. He may likewise detail personnel to educational and scientific institutions and receive outside scientists at the Hygienic Laboratory.

One of the most important items in this measure is a provision for granting commissions to sanitary engineers, dentists, and other scientists in the Service. They would have the same status as to grade and allowances as medical officers. A nurse corps would also be created, similar to that in the Army, and provision is made for a national advisory health council. The bill is printed in full elsewhere in this JOURNAL.

Federal Health Legislation—The only progress in federal health legislation up to March 6, other than the introduction of several new bills of interest to sanitarians, has been the passage of various appropriation bills, and the adoption by the Senate of S. 2828, which forfeits the pay of persons in the military and naval services for loss of time due to wilful misconduct, including contraction of venereal

disease. There have also been reported a few private bills having a specialized health interest.

Among new measures introduced are the following:

Pure food—H. R. 9096. To establish a standard weight for loaves of bread, to prevent deception thereto, and to prevent contamination. Introduced by Mr. Bland on February 9 and referred to Committee on Agriculture.

H. R. 9185. Another bill concerned with deleterious butter, and aimed at oleomargarine. Introduced by Mr. Browne, February 10, referred to Committee on Agriculture.

S. 3052, by Mr. Capper, to amend the Federal Food and Drugs Act.

On February 17 the Senate passed a resolution (S. Res. 146) requesting the United States Tariff Commission to investigate the cost of production of cream, milk, buttermilk, etc., in this country and others, with the purpose that, if warranted, duties on these products may be increased. This resolution has a health import as well as an economic one.

Tuberculosis—S. 3375. To admit civilian Government employes stricken with tuberculosis to Army and Navy hospitals. Introduced by Senator Sheppard on March 3. Referred to Committee on Military Affairs.

Chiropractic—Bills have been introduced in Senate (S. 3299) and House (H. R. 9055) to regulate and license chiropractic in the District of Columbia. As usual, the bars would be let down to those who have already been practicing this cult for two years or more, regardless of their attainments or lack of them.

Miscellaneous—Other measures include: H. R. 9570, to prevent oil pollution of navigable waters; H. R. 9313, to require branding of articles produced by child labor which are shipped in interstate commerce; H. R. 9184, to regulate the traffic in clinical thermometers; H. J. Res. 170, to authorize the President to invite foreign delegates to the Seventh International Dental Congress to be held in Philadelphia from August 23 to 28; H. R. 9962, to regulate the narcotic drug traffic and to incorporate the Federal Narcotic Bureau; S. J. Res. 49 and S. J. Res. 52, to provide and authorize an appropriation for a monument to General W. C. Gorgas.

On March 4 Representative Frear delivered a speech on Indian affairs, in the course of which he strongly condemned present health efforts among Indians, decrying them as insufficient, inefficient, and ineffectual. This speech appears in the Appendix of the *Congressional Record* for March 5, page 4847.

School Board Member as School Physician—Through the courtesy of Dr. M. E. Champion, there has been received an advance copy of a decision of the Supreme Judicial Court of Massachusetts, holding that a member of a local school board cannot also serve as a medical inspector of schools. This case, Barrett v. City of Medford, was decided on grounds of public policy. There was no statute prohibiting such service, nor was there any law allowing it. There are Massachusetts laws, however, which do not permit members of city councils or members of municipal boards to be interested in city contracts, nor to hold offices, the salary of which is paid by the city. The court has also previously held that a board of health may not appoint one of its members as quarantine physician. The court considered the present situation as an analogous one and therefore held that, in the absence of a statute to the contrary, it was improper for a school board to elect one of its members as school physician. As a consequence, the physician was unable to collect eleven months salary at $60 a month.

Other Court Decisions—In Mississippi it has been held, in Miller v. Tucker, 105 So. 774, that a Board of Supervisors has no authority to pay a county health officer's expenses in attending conventions outside of the county. Fortunately for sanitarians, this kind of ruling does not obtain everywhere.

In Wisconsin it was held, in Chicago & N. W. Railway Co. v. Railroad Commission, that a health law is not invalid because compliance therewith may involve a heavy financial burden. This is a good rule of law, though the financial burden must be a reasonable one.

Death from carbon monoxide poisoning has been held to be an accident under the New York workmen's compensation law, in Cantor v. Elsmere Garage, decided by the Appellate Division of the New York Supreme Court, 212 N. Y. S. 327. In Lerner v. Rump, 241 N. Y. 153, 149 N. E. 334, it was held in this state that a disease may be an accident within the law, but the disease must be assignable to a determinate or single act identified in space or time, and it must also be assignable to something catastrophic or extraordinary.

In January we reported that the Michigan sterilization law had been upheld. The Virginia

Supreme Court of Appeals has recently sustained the sexual sterilization act of 1924 of that state, in the case of Buck v. Bell, 130 S. E. 516. The tide seems to be turning in this matter, as up to 1925 all cases of this nature had held such laws unconstitutional. The newer ones are drafted more effectively.

CONVENTIONS

April 15–16, Western Physiotherapy Association, Kansas City, Mo.

April 19–20, American Association of Medical Milk Commissions, Dallas, Tex.

April 19–23, American Medical Association Dallas, Tex.

April 26–28, American Orthopaedic Association, Atlanta, Ga.

April 27–29, Medical and Chirurgical Faculty of Maryland, Baltimore, Md.

May 3, American Society of Clinical Investigation, Atlantic City, N. J.

May 4–5, Association of American Physicians, Atlantic City, N. J.

May 5–7, American Urological Association, Boston, Mass.

May 10–14, New England Health Institute, Concord, N. H.

May 17–22, American Health Congress, Atlantic City, N. J.

May 17–22, American Child Health Association, Atlantic City, N. J.

May 17–22, Conference of State and Provincial Health Authorities of North America, Atlantic City, N. J.

May 17–22, Biennial Nursing Convention, Atlantic City, N. J.

May 18–20, Arkansas Medical Society, Hot Springs National Park, Ark.

May 19–22, American Roentgen Ray Society, Detroit, Mich.

May 20–23, American Gynecological Society, Stockbridge, Mass.

May 24–26, American Surgical Association, Detroit, Mich.

May 24–26, National Probation Association, Cleveland, O.

May 26, American Association of Hospital Social Workers, Cleveland, O.

May 26–June 2, National Conference of Social Work, Cleveland, O.

May 31–June 2, American Pediatric Society, Niagara Falls, Canada.

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